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THE COVER

Pageant of the March Sky
Photograph by Louis C. Williams

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American Forests

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THE
AMERICAN FORESTRY
ASSOCIATION

919 Seventeenth Street
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The American Forestry Association, founded in 1875, is a citizens' organization for the advancement of intelligent management and use of the country's forests and related resources of soil, water, wildlife and outdoor recreation.

Its educational activities seek to bring about a better appreciation and handling of these resources, whether publicly or privately owned, that they may contribute permanently to the welfare of the nation and its people.

In addition to publication of its magazine—AMERICAN FORESTS—designed to keep before the people of the country important conservation questions and issues, the Association carries on educational work in various fields including forest fire prevention, reforestation, protection of wildlife, prevention of soil erosion, preservation of wilderness areas, establishment of national forests and parks, advancement of forestry by private endeavor, the teaching of conservation in schools and the promotion of research in timber growing and forest utilization.

The Association is independent and non-commercial, and has no connection with any federal or state governments. Its resources and income are devoted to the advancement of conservation in the interests of public welfare, and all citizens are welcomed to membership.

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AMERICAN FORESTS MAGAZINE

My Favorite Tree

By CECIL B. DeMILLE

Famous Radio and Screen Director

THE stalwart oak, for 2,000 years to mankind a symbol of strength and constancy, is my favorite tree.

In California's San Fernando Valley is my ranch, affectionately called Paradise, and here a long time ago, on a knoll surrounded by great live oaks, I built a rustic ranch house. I spend as much time here as my radio and film duties permit and I've come to know and to have a deep affection for these noble trees sprung from an acorn some 400 years ago—about the time the British armies of Henry the Eighth were swarming across the English Channel to invade France.

It's been peaceful and stimulating to me to rest or to work among these California live oaks. Sitting beneath them, pleasantly guarded from summer's heat by their vast spreading shadows, came the inspiration for the production of "The King of Kings" and "The Ten Commandments."

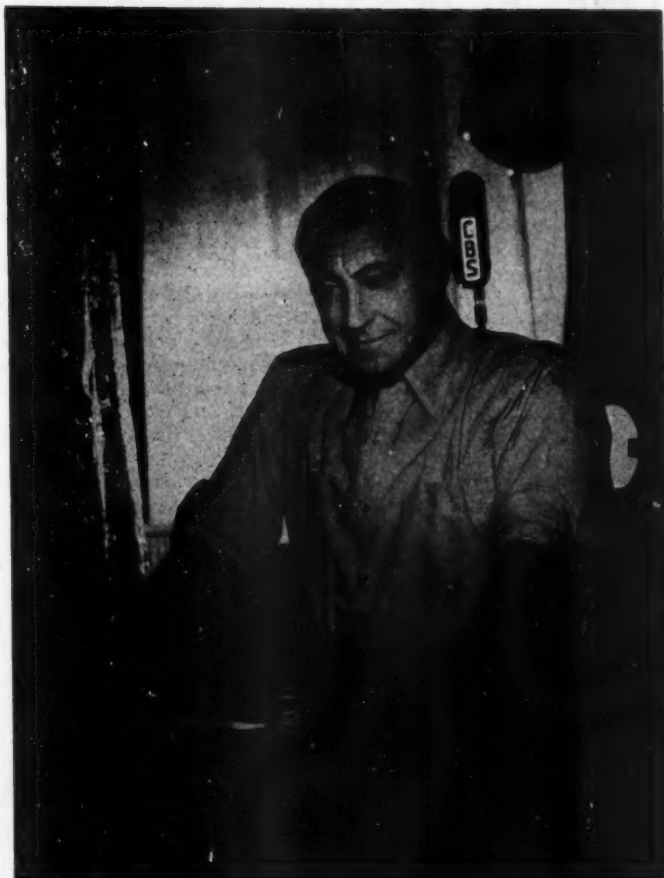
While I know of the many commercial uses for the wood of the oak, the tree is my favorite because its strength and majestic beauty suggest eternal life.

Historically, the oak is the world's most famous tree. It was worshipped by all the branches of the ancient Aryan stock in Europe. The Greeks, Romans, Celts, Druids, Teutons, Slavs, Lithuanians revered it. Incidentally, the word Druid simply means "oak men."

In ancient Italy every oak was sacred to Jupiter, the Roman counterpart of the Greek god Zeus, and on the Capitol at Rome Jupiter was worshipped as the deity not only of the oak but of the rain and the thunder.

The barbarous warriors who dwelt in the primeval forests of Central Europe also worshipped the great god of the oak. The Celts of Gaul esteemed nothing more sacred than the mistletoe and the oak on which it grew. They chose groves of oak for the scene of their solemn services and they would perform none of their rites without oak leaves.

We know that the Celtic conquerors who settled in Asia in the third century before our era carried the wor-



ship of the oak with them to their new home, for in the heart of Asia Minor the Galatian senate met in a place which bore the pure Celtic name of "Drynemetum," meaning "the sacred oak grove" or "the temple of the oak."

In the religion of the ancient Germans the veneration for sacred groves seems to have held foremost place, and according to Grimm, the chief of their holy trees was the oak.

Among the Slavs also, the oak was the sacred tree of the thunder god Perun, the counterpart of Zeus and Jupiter. At Novgorod there used to stand an image of Perun in the likeness of a man with a thunder-stone in his hand. A fire of oak wood burned day and night in his honor.

Perpetual fires, kindled with the wood of oak trees, also were kept up in honor of Perkuns, chief deity of the Lithuanians. If such a holy fire went out it was lighted again by friction of the sacred wood.

Well, to leap ahead about 2,000 years, we don't worship the oak any more but we certainly have a high regard for it. And it seems to me that we ought to provide greater protection for the groves of live oaks. I feel exactly as Henry Thoreau did as he watched from Walden Pond the inroads of civilization upon nature's monuments and said, "Improved means to an unimproved end."

THE FOREST EXCHANGE . . .

Still the Three Forks Question— Pro and Con

SIR: I was dreadfully disappointed by the article "More About Three Forks," by Louise and Stanley Cain in your January issue. Disappointed first by the editorial policy of AMERICAN FORESTS which would accept and print such a vitriolic attack on Mr. Alexander, and second by weakness of the argument advanced by the authors.

I do not know Louise and Stanley Cain and it may be that they rank high among botanists, ecologists and other learned groups, but their claim that areas as large as 18,000 acres are necessary to preserve and develop natural conditions in the forests of the Southern Appalachians borders on the ridiculous. Although my own claim as an expert may be questioned, since I spent only eight years as a research forester in the Appalachians from West Virginia to Georgia, I am thoroughly convinced that natural conditions within any given for-

est type can readily be attained on areas of 1,000 acres and possibly on smaller ones. I am speaking here of natural conditions and development so far as the trees are concerned. For the lesser vegetation, 1,000 acres would suffice as well as 1,000,000.

From the standpoint of fish populations and the working out of a biotic balance between the native brook trout and the introduced rainbow, I do not see how anyone short of an absolute extremist could claim it necessary to close Ravensfork from Big Cove to Guyot. Five miles, perhaps seven, of the stream in the tension zone between the two populations would provide research with all the conditions, data and information it could use.

To bring the wolf, cougar, bison and elk into a discussion of Three Forks is an admission of weakness in the argument of the authors. In-so-far as habitat for mammals is concerned, the general prohibition against hunting in the en-

tire park and the elimination of logging, settlement, etc., will make ample provision. Elimination of fishing and foot travel in the Ravensfork country to preserve birds and mammals is simply stupid.

There is obviously a reasonable middle ground between Mr. Alexander's desires for horse trails and commercial trips and a policy of absolute and complete elimination of foot trails in an area the size of the research area in question. With each successful elimination of provision for ease of travel from paved roads through truck trails, horse trails, and foot trails, there is eliminated from use and enjoyment of an area certain well defined blocks and groups of people. Under the park policy of non-maintenance of any trails in the area, the amount of use would be reduced to an absurd level within a comparatively short time. I have walked into Three Forks with a pack on my

(Turn to page 142)

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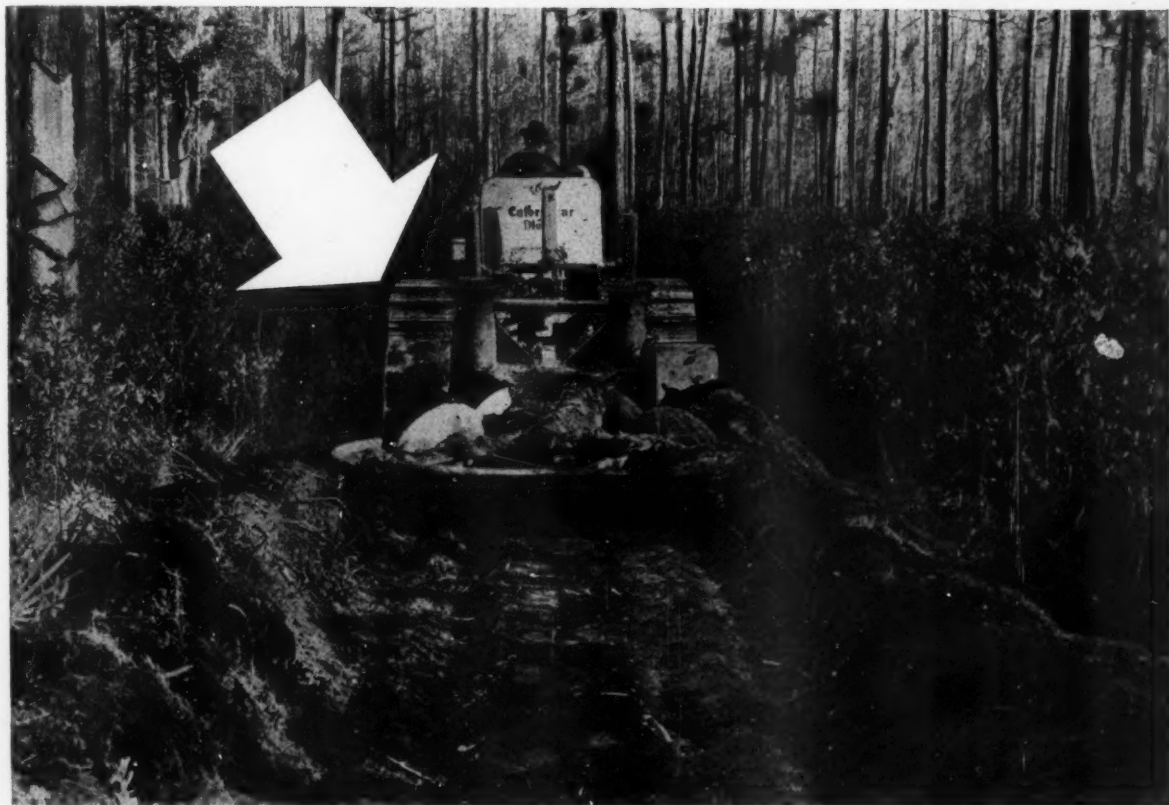
Forest Resource Appraisal

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Spring Awakens in the Southland

Editorial

THE CASE OF THREE FORKS

WHEN, in the November issue, we published "Three Forks—Lost Province of the Great Smokies," by Tom Alexander, it was with the conviction that here is a situation that merits public consideration. Three Forks Basin, readers will recall, is the 18,000-acre heart of the Great Smoky Mountains National Park. It is a primitive and rugged tract of exceptional character and appeal, unquestionably the outstanding area remaining in the East where man can seek and find the physical and spiritual stimulus of true wilderness country. Cloistered within its mountainous borders are virgin forests, along with associated flora of great variety and swift running streams abounding with trout.

Under an administrative policy of the National Park Service, the Three Forks region some ten years ago was set apart from the rest of the park as a research area in which all unrelated human activities have been curtailed to the minimum possible in order that scientists through years to come may study plant and animal life under undisturbed conditions of nature.

The need and value of this type of research in the Great Smokies or elsewhere in national parks have, to our knowledge, never been questioned. Certainly, in publishing Mr. Alexander's article, we did not question it, as some seem to have assumed. Objective research has had and will continue to have our full support. What arrested our interest was Mr. Alexander's assertion that park policy as applied to the Three Forks region is having the effect of closing so large an area of wilderness country against wilderness use and enjoyment by the public. This, according to him, has come about because the Park Service has abandoned all foot and horse trails in the area with the result that even the hardest hikers cannot penetrate far into the thickets of undergrowth that have taken over the old trails.

Mr. Alexander in his article raised the very pertinent question: Is it necessary, in the interest of science, to "lock up" so large an area, particularly when that area is the heart of a national park created for public enjoyment? Scientists, he pointed out—even national park scientists—need trails in such jungle-like country to conduct fruitful research. Cannot research, he asked, be served just as well with small portions of the basin dedicated exclusively to research and the remainder sensibly shared with wilderness folk?

In the light of the pro and con discussion which has followed Mr. Alexander's article, we believe, and a good number of our readers believe, that the case of Three Forks is in need of critical restudy by the National Park Service. Furthermore, we believe that when this is done the main issues should be pinpointed for clarity. In the Great Smoky region where undergrowth becomes well nigh impenetrable, the matter of trails, for instance, cannot be decided on the basis of policies written in national park use books. The question is, is the rugged Three Forks Basin rendering highest service to both science and the public in its present inaccessible state?

One reader, Mrs. J. Norman Henry, research associate of the Academy of Natural Sciences of Philadelphia, writes significantly in this connection (See "Forest Exchange," page 142). "Trails in the Three Forks District should be kept open and in condition, in order that botanists and other scientists may avail themselves of the opportunity for study and to make limited scientific collections. . . . In order to carry even meagre equipment, horses are necessary and can do little if any harm if horse feed is carried." This conclusion, Mrs. Henry states, was reached "after careful consideration and consultation with three other members of the staff of this Academy, including Dr. Edgar T.

Wherry, one of the most distinguished botanists of North America."

This opinion from such eminent authorities is justification enough, we think, to look more closely at the Three Forks situation. The same may be said of the words of I. H. Sims (See "Forest Exchange," page 100), a research forester whose knowledge of the area springs from eight years of scientific work in the Southern Appalachians. "I am convinced," he writes, "that natural conditions within any given forest type (in Three Forks) can readily be attained on areas of 1,000 acres." Also, "from the standpoint of fish populations and the working out of a biotic balance between the native brook trout and the introduced rainbow, five miles, perhaps seven, of the stream in the tension zone between the two populations would provide research with all the conditions, data, and information that could be used." As to wildlife, he comments simply that "elimination of fishing and foot travel to preserve birds and mammals is simply stupid."

Mr. Sims suggests "reasonable middle ground" in dealing with the situation—"two foot-trails across the area and limited angling." Whether or not he goes far enough should be decided on the findings of a thorough review of the case. If, as Mr. Sims indicates, 1,000 acres are sufficient to maintain natural conditions within any given forest type—and there are but three major types in the basin—then it might be well to give serious thought to horse travel, essential to complete public enjoyment of the wilderness. Three thousand acres—or even 10,000—dedicated to research would, it seems to us, permit service to a variety of human interests in this 18,000-acre basin. At least, in justice to both research and wilderness recreation, the case of Three Forks should be thoroughly examined.

FORESTS AS LIVING WAR MEMORIALS

There Can be No Tribute to Our War Heroes More Noble, More Enduring,
or of Greater Service to Home and Country Than Living Memorials of Trees

On a square of grass before the headquarters of The American Forestry Association in Washington, D. C., there is displayed a section of an eight centuries-old coast redwood tree. Each day scores of passers-by pause to gaze at this enormous block of wood, or coming close, study the minute yet clearly defined growth rings upon its surface. Frequently, individuals or groups enter the building to ask questions about redwoods or to talk about other trees.

Such continuing interest is undoubtedly accounted for in part by ordinary human curiosity, yet a far more important cause is found in the fact that everybody loves trees. Americans inherit this feeling from ancient forest-dwelling European forebears. It is true that through several generations new world pioneers warred against the primeval woods to clear land for the plow, yet apparently this regard for trees was never lost; in fact, their present day descendants seem to possess a rapidly growing understanding of the importance of forests in our American way of life.

People love trees for their beauty of form and color, for the shade and shel-

ter which they offer, and for a hundred other boons. No countryside can be ugly if it is wooded, unless the tree growth happens to be in the process of destruction. Forest veterans of great age and size charm us because they delight the eye, but equally because we know that they have stood firm while centuries of time passed over their heads. This particular block of redwood, removed only a few years ago from a tree which had watched the first Spanish adventurer approaching California's shore, commands respect as a link with the long ago. We know that the only living things on this continent—or any other—which are older than seven hundred years are trees.

Napoleon, reviewing his victorious army beside the Pyramids, cried: "*Trente Siecles vous regardent!*" The botanist, David Douglas, riding alone among the giant firs of the lower Columbia region, might have said, with equal truth, that not thirty but fifty centuries were looking down at him. Such forests rival rocks in their resistance to destructive forces, albeit in an active rather than a passive way.

Over vast portions of North America,

during the thousands of years since glacial ice receded, forests have persisted. Individual trees grew old and, decaying within, fell to earth. Yet before dying they cast abroad the tiny germs which became seedlings, saplings, and tall veterans in their turn. Fires set by lightning or game-seeking redmen burned over large areas here and there, making them barren for a time; yet always such places were ultimately reclaimed by the persistent trees. And so, whether the life span of its members averaged one century or ten, the continuity of the forest community remained unbroken.

The generic name of the sequoias, largest and longest-lived trees of North America, reminds us of an humble Cherokee Indian, who never learned to read or even to speak the white man's language, yet invented an alphabet that made it possible for his people to write their own tongue. However posterity may rate such an achievement, it is difficult to imagine a nobler or more enduring memorial to any man. Groves of big trees in the Sierra and far-stretching coastal redwood forests alike keep his name upon the lips of succeeding generations.

Through the ages, people of many races and nationalities have set up statues and monumental edifices to honor their gods, or themselves, or deserving fellow mortals. Customarily we think of such monuments as having been made from the "imperishable rock," although in modern times, metals and other materials often are employed. The case of Sequoia, the Cherokee, suggests that wood may rank with stone and metal or cement in its suitability for memorial use, if employed in its living form. And the suggestion is timely, since all over America people are thinking about ways of expressing their gratitude to the men and women who are fighting this war.

There is nothing new in this urge to honor our fellow citizens. Already in public places of innumerable cities and hamlets stand monuments to heroes of other wars, and of peace. There is novelty, however, in the fact that we are

As memorials, forests may be old or new, large or small, publicly or privately owned—may honor the many, or an individual



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What can be more fitting—and sensible—than to combine the urge to create war memorials with the present community and school forest idea?

asking ourselves whether different forms of memorials are not desirable. People with artistic taste argue that too many of our statues and memorial edifices are depressingly ugly. Certainly they are cold and lifeless. Practical-minded folk deplore the spending of money to set up relics or build structures which, however stirring they may be, still lack day-by-day usefulness.

Public-spirited citizens are displaying real interest in this question. Commissions have been organized to promote new kinds of memorials. Polls are being conducted by important magazines, and the response indicates that many Americans favor useful things, particularly if some degree of beauty can be realized along with continuing utility. The term most widely used to describe what many appear to desire is "Living Memorials." By this is meant all manner of useful projects to develop and maintain facilities that may be used and enjoyed by people—such things as hos-

pitals, civic centers, parks, playgrounds, athletic stadia, forests, to mention a few.

The American Forestry Association congratulates these agencies and individuals upon their common support of such an idea. Naturally, the Association's strongest interest centers about the proposal, so often made in the past and now re-emphasized, that forests be recognized as peculiarly fitting memorials.

Memorial forests may be large or small; they may represent considerable outlays or practically nothing in the way of cost. Often community or other public forests begin in a small way—as gifts of a few acres of land—and grow in time to vast proportions and important values. Such projects have the peculiar merit of flexibility; they may be simply groves of trees, or they may contain such special features as playgrounds, refreshment centers, and memorial structures. A forest may belong to a community or to an individual or a family, and as such, may commemorate the re-

gard held for a hundred citizens, or for a son or brother.

This Association has long been enthusiastic over the feasibility of establishing community forests almost everywhere in the United States. It knows that there are many cities and villages which would be made better dwelling places through development of such forests conveniently near. Public enjoyment of woodland playgrounds and beauty spots is always a sound reason for making such investments. And it frequently happens that ultimate cost is less than nothing, for large, well-managed community forests have a way of producing profits through sale of wood for commercial use, without impairment of esthetic or recreational values.

The natural desire of Americans to beautify their cities and villages is given added impetus and far greater significance by the fact of war. No community has escaped the burden of national defense; everywhere there is an urge to commemorate the services of men and women who went forth to defend and preserve our way of life. What could be more fitting—and sensible—than to combine the community forest idea with the urge to create war memorials?

Such an opportunity is open to all. Schools, local veterans' posts, men's and women's clubs, chambers of commerce—any of these organizations can sponsor a memorial community forest. Or any other group of people in a community can form a committee to enlist support for carrying forward such a project. The American Forestry Association commends these projects to the attention of all citizens and offers its aid in organizing and the pages of this magazine as a place for recording progress.

Because the creation of a memorial forest requires special information and careful planning, The American Forestry Association now has in preparation a booklet on the subject. This should prove a handy guide to any individual or group interested in establishing a forest memorial, as it suggests step-by-step procedure—the various kinds of forests that individuals, groups, communities, or states can establish as memorials; ways to acquire forest properties, and plans for their management. Copies of this booklet may be obtained from The American Forestry Association, 919 Seventeenth Street, N.W., Washington 6, D. C., at ten cents each, to cover mailing costs.—EDITOR.

THE CANADIAN FORESTRY CORPS

From the Scottish Highlands to France, Canada's Soldier Woodsmen Have Since Dunkirk Been Producing, On the Spot, Timber Needed for War

By LT. COLONEL A. E. PARLOW

IN modern streamlined war, with its lavish use of metals for all purposes, the demand for wood is greater than ever before—wood for military camps, for docks, bridges, many types of warships; for parts of weapons, from rifle butts to the famous all-wood “mosquito” bomber; for crating planes, ammunition and food. In addition, the United Kingdom has required during the past five years enormous quantities of wood for repair or strengthening of bomb-damaged buildings, and in construction of warehousing facilities and defense works. The railways' demand for wood also increased enormously. Wood is an essential munition of modern war.

In 1915, during World War I, with the U-boats causing deadly losses, and ocean tonnage vital, the British War Office asked Canada to furnish skilled woods and mill workers to produce, in the forests of the United Kingdom and France, wood materials of all sorts needed by the armies. The first units were raised and equipped in a few weeks, and in amazingly short time were at work in or close to, the areas of actual military operations. Many vessels that had been used in transporting timber were thus released.

At the end of the war, the Canadian Forestry Corps had overseas some 17,000 all ranks and, with attached per-

sonnel, including prisoners of war, totalled approximately 33,000 men, and, as the record shows, had supplied “over seventy percent of the timber used by the Allied Armies on the Western Front.” One C.B. (Companion of the Order of the Bath), a C.M.G. (Companion of St. Michael and St. George), a C.B.E. (Companion of the Order of the British Empire), two D.S.O.'s (Distinguished Service Order) and a number of other decorations were awarded for meritorious service. The Corps was commanded by a major general, two brigadier generals and several colonels.

Early in the present war the same situation developed, and again the War



The “company,” rather than the unwieldy “battalion” of World War I, is the basic unit of the Forestry Corps. Here No. 5 Company, commanded by a Major, marches through the streets of a town in Scotland early in 1941

Office asked if Canada would furnish forestry units. A smaller number of forestry units were also supplied by Australia and New Zealand. The original program had to be modified when the fall of France and the evacuation at Dunkirk changed the setup, but twenty companies were quickly raised and dispatched to the United Kingdom. Others

sioned officers, provided for a medical sergeant, an armourer sergeant, millwrights, sawyers, bush and mill foremen, tractor and lorry drivers and mechanics, plumber, electrician, tailor, shoemaker, cooks, and so on. Each unit was self-contained, competent to function alone or with others wherever it might be set down.



Keeping the coal mines of Great Britain supplied with pit props was one of the Corps' most important jobs. Operations were mainly in Scotland

followed as needed. From the experience of the last war, when forestry battalions were found to be too unwieldy, the company was made the basic unit. It was commanded by a major, with a captain as second in command, and four lieutenants, consisting of adjutant, a "bush," a "mill," and a "transport" officer. The "war establishment," in addition to the usual infantry complement of warrant officers and non-commis-

Canadian mills, tractors, bulldozers, trucks, sulkeys and complete outfits of bush tools were provided and, in addition to the usual infantry soldier's outfit, bush and work clothing and boots. All ranks were required to complete basic training and were familiar with infantry weapons and tactics before proceeding overseas.

Brigadier General J. B. White (now a major general), C.B.E., D.S.O., E.D.,

was given the task of raising, training and commanding the Corps. This officer, with his long military experience and wide connections with the timber industry, was an ideal choice. In the last war he commanded the Canadian Forestry Corps units in France, and the experience so gained was invaluable in the present show.

The officers were chosen from the lumber and pulp industries, engineers and foresters, from the Pacific to the Atlantic. Quite a number wore service ribbons. In one company all the officers had had previous war service, and several wore decorations.

The writer had the honor of taking the "advance party" overseas in the fall of 1940 (six officers and fifty-two selected "other ranks"). General White, with Corps H.Q. and the first operating units, arrived in a United Kingdom port on Christmas day.

Woods operations were commenced at once, and materials for camps, warehouses and other purposes were sawn by our own men in "Scotch" mills, provided by the Ministry of Supply, so that from the first day the Corps was not only self-supporting, but began to produce for the national stock.

Canadian mills, lorries, tractors and other equipment came forward in rapid order, and the volume of production grew. Set-backs occurred. For example, in spite of instructions to stagger shipments, sixty winches were loaded on one vessel, which was sunk by enemy action. Winches were in short supply and, as the artillery and others were all demanding winches, the loss could only be made good slowly, and for several months logging tractors were badly handicapped.

As for the military situation, Dunkirk was very recent, with its loss of arms and equipment, and invasion was expected daily. Rifles, bayonets and machine guns, to say nothing of planes, artillery and tanks, were desperately short. Shotguns and sporting rifles were commandeered everywhere, and the War Office had several hundred thousand pikes (a crudely shaped iron spear blade on a six-foot shaft) manufactured and issued to the hurriedly formed Home Guard, who were told on high authority that the pike in close combat, and at night, was a better weapon than a rifle. A very mixed lot of rifles of all ages was collected and shipped to the United Kingdom by well-wishers in the United States. The arrival of a few thousand husky Canadian soldiers in these circumstances was very welcome, and the Corps was immediately allotted operational roles, mainly defense or recapture of airfields, defense of local strong points, or, being very mobile with transport equipment,

the rounding up of airborne troops that might be dropped in the country.

The men worked nine hours a day, five days a week, getting logs, putting them through the mill and loading the output on funny little railway "wag-gons" or on small coastwise vessels, to be delivered wherever needed. Saturday and often Sunday were taken up with military training and exercises in which the Home Guard, local old country units, the 51st Division, the Norwegian and Polish armies, the Air Force and the Navy at times took part. Many week-nights were also given over to lectures and training on the Bren, the Sten, tom-myguns, grenades and other weapons. The loading of trains and ships was the only activity that took priority over military training.

The timber cut was principally Scots pine. This was sawn into planks, or the largest sizes the log would make, to be resawn later in civilian plants; the exception was in the resawing of slabs, from which we recovered short lengths of one-inch and one-half-inch lumber. Logs down to about ten inches were cut in the Canadian mill, smaller logs went to the "Scotch benches." These last are primitive mills. The log sits on a table which rests on wooden rolls; it is not dogged in any way, and the whole con-



Canadian mills, tractors, bulldozers, trucks and other equipment went overseas with the Corps. Losses at sea handicapped early operations

traption is pushed against the saw by hand. In a leisurely careful operation, on a country estate, good lumber can be produced with it, but when our lads attempted to speed up production many were hurt.

The tops, down to two and a half

inches, were taken out for pit-props, and as this tied in to the critical coal situation, the Ministry of Supply was constantly demanding more and more output. At first, we were asked to peel the props and work them up into the multitudinous sizes and specifications of the



Logs, principally Scots pine, were sawn into planks which, in most cases, were resawn later in civilian mills. Larger logs were handled by Canadian built equipment, the small stuff by primitive Scotch mills

peacetime market. Later, it was arranged that we take out and ship all material in any of our operations that would make seven to fourteen feet, straight and sound enough to make a prop two and a half inches by two and a half feet or larger, and this material was shipped in bulk and accounted for by weight. It was not measured or counted, and was known as "tonnage wood." This was remanufactured by civilians into the complicated sizes required by the mines.

Large quantities of poles, very few of which would be marketable as such on

Scots like a swarm of locusts, removing the blanket of trees that adds so much to the beauty of the rugged hills, changing overnight the appearance of large areas, only the most cordial relations existed between the Canadians and the people of the country. Scottish hospitality, from the duke and the large proprietor to the humblest crofter, was open handed, and officers and men soon felt more at home, and among their own kind, than they ever thought they would be outside of Canada.

The Corps were "ancillary troops."

access to a dispersal ground on the other side. The G.C. said that "works" would have taken three months to get out the blueprints.

The first winter brought the worst snowstorm in eighty years, tying up all traffic and grounding all planes. The Corps turned out bulldozers and scraped the main roads, all the way to Thurso, Wick and Tongue, at the extreme top of the Island, restoring military and civilian traffic. We cleared runways for new landing fields, constructed many miles of new roads, built defense works, put



After Dunkirk, when invasion was expected, the Corps was given operational roles, such as defense of air-fields. From camps in Scotland, the men worked nine hours a day in the forest, trained for combat at night

this continent, were produced for power transmission and telephone and telegraph lines. An interesting case arose in this connection. It was found that the pilots of heavy bombers, returning from long and successful flights over the continent, would make bad landings on their home fields in the uncertain light. The Air Force decided to flood-light the fields, and the Corps was asked to rush production of the necessary light poles. In a very few days the required number of poles were made and shipped.

One point to be mentioned is that our production, both sawn and round, not only was vital in the saving of ocean shipping, but that the material so produced could not be sunk by the enemy. The only loss the writer knows of was a 200-ton coaster loaded entirely with sawn stuff.

The Corps operated almost entirely in the forests of the Scottish Highlands, and while we must have seemed to the

The writer looked that up and found that ancilla was a handmaiden—and certainly we were handmaidens to the forces. It was found on arrival in the United Kingdom that the Royal Engineers, charged with providing quarters for us, were swamped with other demands, so we built our own camps, complete with camp-style cook-houses, wiring, plumbing and heating. A new type of hut construction was devised, using edged slabs, low grade of lumber and cement, that was comfortable and economical of materials.

A large Royal Air Force station was crowded to the point where the group captain feared that a German photographic plane would spot the congestion and the station would be bombed. He applied to the Corps for aid. A platoon from a Quebec company was put on the job, and built a bridge across a turbulent Scots river in eleven days, capable of taking a medium bomber and giving

up wire. A hundred and one outside jobs, made necessary by the emergency, were taken on and all the while we carried on with the essential job of producing the desperately needed timber supplies, continued training in the use of our weapons, and practiced over the areas and manned the defenses, where our operational roles lay, in case of invasion.

Now the picture is changed. With gathered strength the Allies have invaded the continent, and with them went Canadian Forestry Corps units, to carry out their original role of producing from the forest, on the spot, the materials required by the field forces. The full tale of accomplishment, of honors and awards, and casualties, cannot be told until the war is over. But no officer or man, who has worn it, has any reason but to be proud of the badge of the Canadian Forestry Corps.

FIGHTING TREE KILLERS WITH DDT

A Miracle Insecticide Promises Great Things in the Control of Tree Insects

By HENRY S. KERNAN

WHEN last summer an airplane flew over the treetops spraying an oily solution of the now famous DDT, a new era was opened in forest entomology. The control of insects from the air has been studied for more than two decades, but up to last year the loads of insecticide had been too heavy and too expensive to pay their way. No one had figured out how to get the air load under fifty pounds an acre and still have it effective. But with an insecticide that destroys practically every insect in an acre of forest and requires only about one or two gallons of solution in the process, foresters are taking new hope in the age-old battle against one of the great destructive forces of the woods.

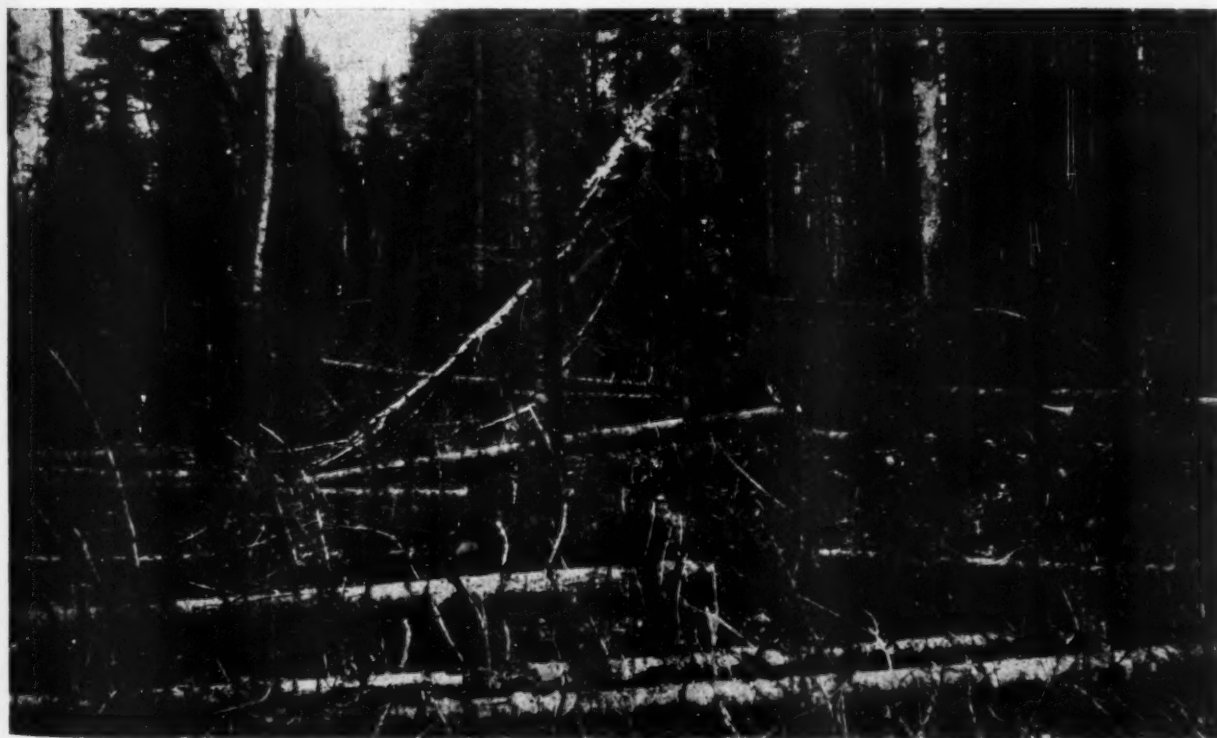
DDT, of course, is a quick way of saying dichloro-diphenyl-trichloroethane. A white powder that is practically odorless when pure, it is insoluble in water but soluble in varying degrees in alcohol

and other organic solvents. It is made by condensing chlorobenzene and chloral in the presence of sulphuric acid.

First discovered seventy years ago at Strasburg, Germany, by a young student named Othman Zeidler as a routine part of preparing a thesis, the formula lay hidden in six lines of notations in the "Proceedings of the German Chemical Society" until 1940 when its amazing properties were put to use in Switzerland for protecting agricultural crops. A shipment of the commercial product was received in this country two years later and part of this was made available to chemists and entomologists of the Department of Agriculture's Bureau of Entomology and Plant Quarantine, who soon found it to be the deadliest insecticide ever to appear in the insect world. It was especially effective in the control of mosquitoes and other pests that transmit diseases of man, and was promptly

called to the attention of military authorities. Since then, demands have skyrocketed; and tales of its lethal powers sound like the curses of mosquito-tortured woodsmen come true.

Although still doing preliminary research, forest entomologists have found DDT highly effective in the control of a large variety of tree killing insects. This comes at an opportune time, for an outbreak of the spruce budworm, which in the decade following 1910 wrought such havoc in northern forests, has again reached the explosive stage in the provinces of Ontario and Quebec in Canada, and entomologists calculate another epidemic soon will be due in Maine, New York and the Lake States. The 1910-1920 catastrophe destroyed 225,000,000 cords of pulpwood, a loss that would be particularly tragic if repeated in the coming decade. At the present time, the budworm is destroying Canadian pulp-



Destruction of this Minnesota forest by the spruce budworm began in 1913. Now balsam fir lies rotting while the country cries for pulpwood. Foresters are hopeful that DDT will aid management in reducing such tragic waste

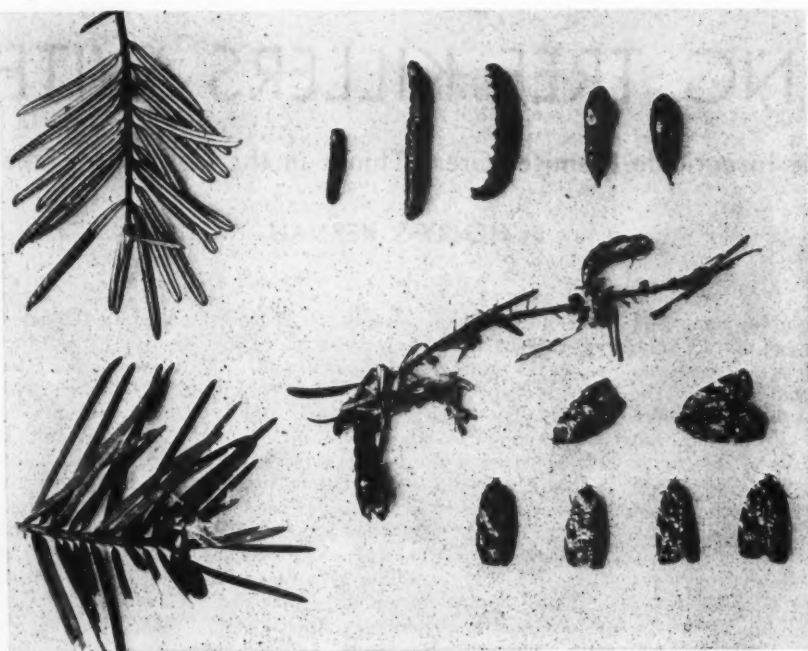
wood at the rate of from 5,000,000 to 10,000,000 cords a year.

Both the Bureau of Entomology and Plant Quarantine and the U. S. Forest Service are aware of the danger and are cooperating fully with Canada in joint studies on budworm control with DDT. During the spring of 1945, experimental spraying will be made on around 5,000 acres of Canadian woodland. Maine operators, faced with the threat of having their pulpwood crop cut in half, are actively interested. So is Congress, which has made two special appropriations. Indeed, the stage is fast becoming set for DDT's first great battle in forest insect control.

Go to nearly any evergreen forest of the northern states, or to the fir forests of the Rocky Mountains, and the chances are that with reasonable effort you will find traces of spruce budworm. For although it is rather difficult to find unless in the epidemic stage, spruce budworm is nearly always present. In fact, it is so widely distributed that it can never be exterminated. The object of control, therefore, is to reduce defoliation in valuable stands to where the trees can survive. There were destructive outbreaks before logging began; there will be others in the future. If man does not harvest the forest, insects will. Nor is there any "line" to hold. An outbreak in Maine will not indicate that the budworm has spread from Canada. It will mean that equivalent forest conditions have been reached in both places. The budworm does not "spread"; it increases at certain places and at certain times for various reasons not too well understood at present.

Too much emphasis, therefore, cannot be placed upon patrol and identification. Entomologists never tire of pointing out that what is a serious condition now was a trifle a few years ago. At some places in the forest, there were a few more dead tops than usual, presenting a scorched appearance and later turning grayish. If only that had been recognized and reported!

The moth responsible for this drain



The yellowish brown larvae, shown at top, feeds on the new foliage and later becomes a grayish moth. Both larvae and moth are inconspicuous and not readily found unless so abundant as to be epidemic

on the forest is grayish with brown markings. It lays its eggs on the foliage in July and the tiny yellowish brown larvae hibernate over the winter, to begin feeding when the spruce and fir buds swell in late April or early May. They cause damage by eating the new foliage year after year until the tree dies, or, stunted and weakened, succumbs to secondary predators.

For long periods the budworm may remain an obscure but persistent inhabitant of the forest, held in check by adverse weather and parasites. But let conditions become ripe and it jumps out of control.

In spite of the name, spruce is not the preferred host for the budworm. Damage is done to spruce, and also to jack pine, Scotch pine and other conifers. But the principal sufferer is the balsam fir. This tree, once passed over as useless, has become an important source of sulphite newsprint. Prolific, fast-growing and hardy, it is, with spruce, the typical tree of the North Woods.

In some ways the two are badly paired. Spruce, the prime pulping wood, grows more slowly; and the woods operator, in waiting for spruce to mature, loses as much as half his growth of fir through decay, windthrow and the budworm. This fact is the core of the problem, and in it lies the solution. The spruce budworm attacks are most dangerous in overmature stands of pure balsam fir. Their virulence can almost be predicted by the proportion of fir in the

stand and by its age.

Take the example of Maine. Here is a wilderness area of 6,000 square miles of privately owned timber producing 835,000 cords of pulpwood a year. There are some pines and some hardwoods; but the great expanse of forest is the spruce-balsam fir type. Roads and railroads are at a minimum. Loggers depend upon the rather inflexible water-driving methods involving a big outlay in dams and a long wait between the time the wood is cut and is delivered to the mill. The result is that

an operator cannot

go into a given area except for a heavy cut, for which he usually must wait from fifty to sixty years. By that time the fir is declining on all but the best sites.

Consider a typical acre of Maine woodland last cut over in 1895. Since then it has grown a cord every decade, and the volume now stands at five cords. The proportion of fir has increased. What were saplings fifty years ago are now decadent overmature trees. Obviously, the stand has passed its prime and is ready for harvesting—or for the budworm. There are around 5,000,000 acres of Maine woodland in this very condition today.

Held down by an inflexible logging system and dealing with a bulky, low-value product, the practical woodsman cannot afford salvage operations, logical though they may be in theory. No wonder, then, that he is intensely interested in DDT as a tool to help him manage his low-yield forest that grows slowly and over rough and remote terrain.

The results of the 1944 aerial applications against the gypsy moth and certain other forest insects were so successful that extensive experiments with the spruce budworm will be undertaken this spring. Complete control has been achieved with dosages so small that soon it may be possible to treat a square mile with a single load—that is, if larger planes can be adapted for the work.

Part of this success is due to the distribution methods developed by the Bu-

(Turn to page 143)

FORESTRY IN SAN PIETRO

By R. P. HOLDSWORTH

THE Allied Science Club of San Pietro had its origin in the desire of soldiers who were working hard at the disagreeable business of war to do something in the way of self improvement during the few hours of the week they could call their own. This urge brought together a number of men representing all ranks and all units billeted in an ancient Italian town which, for the purpose of this story, can be called San Pietro. Its real name cannot be revealed. But aside from this one bit of fiction, the rest of this narrative is true.

The word "Allied" in the name of the club does not refer to possible relationships between the sciences but to the source of its members. These came from the several units of the Allies in the town—Americans, Royal Air Force and South Africans.

Representatives of the various outfits met one night in a dismal room and decided on two points. First, that there were enough men who genuinely wanted to study and to hear orientation lectures to justify the organization of a school; second, that there was plenty of enlisted and commissioned talent available to head up the classes and give the lectures. The birth of the Allied Science Club in San Pietro was as simple as that.

Once GI Joe and his allied brethren decide that an idea should take shape and become a reality, just leave it to them. They promptly provided rooms, gathered articles of equipment from goodness knows where, nominated teachers and provided for a series of general lectures and classes that included botany, ornithology, forestry, history, chemistry, mathematics and other subjects. One thing they wanted especially was orientation lectures on a number of professions, talks that would describe the several fields and help men toward an answer to the question that held second place in many minds, "What am I going to work at when I get home?" The first place in the soldier's mind, of course, is always filled with thoughts of loved ones and when they will meet again.

My own services were requisitioned for a talk on "What is Forestry?" because that was my field as a civilian.

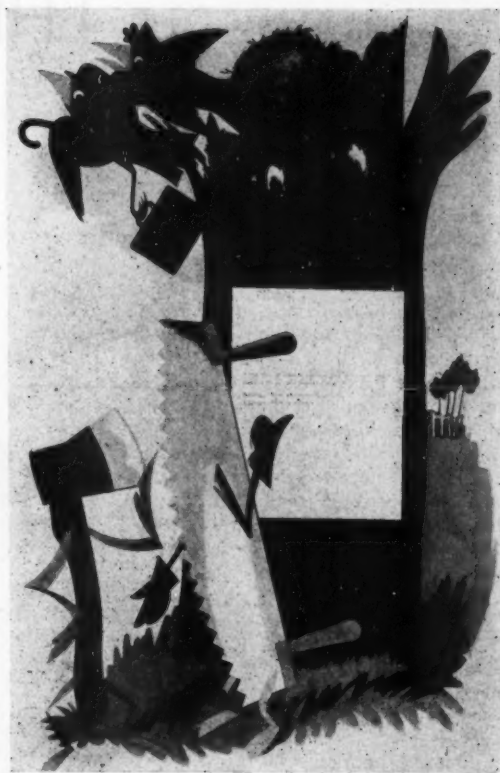
The general sessions were held in the

recreation room of the Airmen's Mess. For a number of days preceding each of these meetings a colorful poster, hung in the lobby of Wing Headquarters, announced the subject and the speaker. These posters were works of art, cleverly executed in high color by a Corporal Moon of the RAF. I claimed my poster as a fee after the talk was given and considered myself highly paid.

If you should look at an aerial photograph of San Pietro, which is a very old town indeed, you would at once be struck with the thought that the center of the place must have been formed by a giant finger tracing circles in mud, which was then quickly sliced this way and that before it hardened into a reckless pattern of little streets and narrow alleys. The Airmen's Mess is located in one of the older buildings near the center of the maze and one must have first located it by daylight in order to find it after dark, for wartime San Pietro on moonless nights is as black as the inside of a derby hat.

Not for a moment would I intimate that I reached the door of the mess building on that drizzly February evening by following a crowd flowing to my lecture. On the contrary, an audience of twenty-five was considered very good and, being of volunteer origin, it was usually warmly responsive.

The Airmen's Mess was entered from a narrow street where one was safe from being over-run by the tide of mechanized gear that often flowed by night through the town toward the front. When you had swung open one of the two great wooden doors admitting to the inner courtyard, you knew immediately that you were in the right place because the smell of Army cooking hung heavy-layered in the air. In normal times, the building with its seeming miles of stone corridors furrowed by countless feet, may have been a schoolhouse. Or



"My own services were requisitioned for a talk on 'What is Forestry?'—and I claimed my poster as a fee"

it may have been a law court. At least it had been a public building of some kind for many, many years.

The darkness of the recreation room was accentuated by a single tiny electric bulb that hung like a dim star between the floor and the indeterminate ceiling. Someone bustled in and, balancing like an acrobat on a trembling structure of benches and two rickety tables, placed a globe of slightly higher candle power in the socket. Now one could get a better idea of this shrine of science. Originally it had been as gay and inspiring to recreation as the receiving room in a city morgue. But the airmen had corrected this and had muraled its walls with the liveliest kind of paintings depicting the dances of all climes and nations. Here was silent but effective competition for any lecturer, proper enough, but vigorous. I remember wishing that the squatting Russian with folded arms would unsquat himself. He looked so pained and uncomfortable.

The stove, like the electric light in the gloom, merely accentuated the chill. We could thank the Germans for the stovepipe, though. It was made of their 88 millimeter anti-aircraft shells.

A lieutenant of the RAF introduced
(Turn to page 144)

THE BIRD'S DEBT TO

By HAL H. HARRISON

EVER since a biologist first opened a bird's stomach to count the number of bugs it had consumed, there has been a flood of statistics which always add up to one conclusion: That trees are indebted to birds for their health and vigor—even for their perpetuation. For many years I have read that woodpeckers are guardians of the forests; that cuckoos are sure-death to tent caterpillars; that blossoms would be ravaged by insects if the warblers and vireos failed to show up in the spring; and that here is the hawk that ate the mouse that ate the roots of the tree that Jack planted.

As an active Audubon Society worker, I proudly refer to myself as a conservationist of the first water. I want to be right up front when anything derogatory is said about birds. But frankly, I am getting weary of reading about this great debt that trees owe the birds. It seems to me that the time has come to give credit where credit is long overdue—to the trees. And what is more, if this bird-tree relationship is at all overbalanced, I claim it is the bird, not the tree, that owes the greater debt.

To begin with, the very thing for which the bird receives the greatest credit, the destruction of millions of enemies that would otherwise attack and eat the trees, is a symbiotic relationship between bird and tree in which both benefit equally. Certainly the bird is



When a bird has satisfied its appetite for larvae, caterpillars, beetles and other insects, it has no other service to offer the tree. But in addition to food, the tree has much to offer the bird—for example, cavities as nesting places (above), or twigs, bark and leaves for nests such as that of the wood thrush (left)

THE TREE

Much Has Been Said About the Tree's Debt to the Bird. Here's the Other Side of the Story—and by a Bird Lover

never conscious of any benefit derived by the tree from the fact that bird diet demands that it visit trees to satisfy its hunger. One might just as readily say that trees are the guardians of birds' stomachs. And how convenient for birds to have this ever-open dining room throughout their range.

When a bird has satisfied its appetite by eating so many larvae, beetles, grubs, caterpillars, weevils and what-not, it has no other service to offer the tree. But when the tree has sent the bird away with a bulging stomach, it has many more desirable things to offer. There are homes for birds in every nook and cranny of a tree. Trunk, limbs, crotches, hollow cavities and even roots serve as nesting sites, as well as permanent or winter homes.



Birds consume insect pests which otherwise would likely kill millions of trees—but how, asks the author, would birds such as the downy woodpecker get along without tree grubs?

The robin, wood-thrush, mourning dove, cardinal, jays, goldfinch, hawks, vireos and many warblers and flycatchers are among the more common species nesting in tree branches and crotches. Cavities in living or dead trees are the nesting sites sought by the woodpeckers, and if natural cavities are not available, these colorful birds drill holes with their chisel-like bills. Many birds, not so adept at drilling, find desirable nesting sites in abandoned woodpecker holes or in natural cavities. These include wrens, bluebirds, starlings, chickadees, nuthatches and tree swallows. Wood ducks and certain mergansers are cavity-inhabiting. So is the little spar-

row hawk, a falcon. In the owl family, the screech owl and the saw-whet owl are cavity dwellers, while the barrel owl often seeks similar nesting sites.

Unusual tree homes are made by certain birds that saddle their nests to the tops of horizontal limbs. The ruby-throated hummingbird is a notable example. Its lichen-covered nest looks like a knot on the top of a small limb. Similar nests are constructed by the blue-gray gnatcatcher and the wood pewee. Roots, too, provide unusual nesting places. On several occasions I have found the nest of a Louisiana water-thrush along the bank of a woodland creek, neatly hidden among exposed roots. The black and white warbler generally nests in an indentation on the ground at the base of a small tree. The ruffed grouse seeks the protection of the trunk of an oak for its nest on the ground.

Just to prove that no part of a tree is neglected by birds seeking places for their nests, there is the brown creeper

Tree crotches support nests, such as this cup-like home of the yellow warbler



Although the chimney swift never feeds in trees, it depends upon them for nesting material. Twigs, gathered on the wing, are plastered to walls.

that secretes its nest under a loose piece of bark on the trunk. Nor does a tree have to be upright to attract birds. After it has fallen to the ground and becomes a rotted log, it offers to turkey vultures a nesting site ideally suited to their needs.

Another point in favor of the trees are thousands of bird boxes erected annually by bird lovers. For, aside from a few metal or plastic boxes, all are made of wood. A friend of mine placed

172 boxes on a ninety-acre tract and, during the past summer, fifty were occupied by nine different species of birds. Another friend, a bird-bander, had the same male crested flycatcher return five straight years to a nest box in his yard.

The tree also provides a great deal of material with which birds build their nests. Twigs, leaves, bark, roots, catkins, bud scales, and even lichens that cling to the bark are sought by various species as nest building materials. This

is even true of many birds that do not build in trees, ground-nesting birds for example. The ovenbird, a dainty woodland warbler, builds its nest on the floor of the woods. The name "ovenbird" comes from the shape of this nest, which resembles an old-fashioned Dutch oven, domed on the top with the opening at the side. Into the "oven" go dozens of leaves or parts of leaves. Indeed, the camouflage for which this nest is noted is achieved by placing leaves over and around the nest in such a way as to make it look just like a part of the woodland floor. The towhee, although not quite so masterful in the art as the ovenbird, also uses leaves as camouflage.

A bird that never alights in a tree but which uses its material exclusively for nest building is the modern chimney swift. I say "modern" because the swift nested in hollow trees before man offered so many chimneys. The construction of its platform of twigs against the brick wall of a chimney is a miracle of nature. How the bird makes the twigs stick together, or to the side of a chimney, was explained only when scientists learned that during the breeding season the chimney swift has a saliva like glue. The bird flies into a tree, snaps off a twig with its feet, and actually glues it to the side of the chimney. A second twig is saliva-glued to the first, and so on until there is a platform of twigs large enough to serve as a nest for eggs and young.

What would the singing male bird do without a tree top perch from which to declare himself? It is from a favorite perch, usually in a tree, that the male songbird attracts his mate—that he warns other males of the same species to keep out, that this is his territory!

Ornithologists accept the theory that practically all birds establish themselves in certain fixed territories at the beginning of the breeding season; and that the male birds defend their chosen sites against intruders. The boundaries of these territories are as fixed in the minds of the birds as though a fence were erected around them. Thus, from conspicuous perches, most males sing during the breeding season to declare their territorial rights. While birds usually will tolerate other species breeding within their territories, they expel immediately their own kind. Two robins are never found nesting in the same tree; yet, a robin's nest and that of another bird may be found very close together.

Trees often serve as boundary markers for these breeding territories. One summer a robin nested in a sassafras tree in a grove in front of my cottage. Another pair built a nest in a sassafras toward the end of the grove. Between them was a huge tuliptree. As the nest-



During the annual molting period of late summer, birds seek the seclusion and protection of trees. Note the ragged condition of this cardinal's tail

ing season progressed, it became more and more evident that the tuliptree was the boundary. For either robin to so much as set foot on the other side of the tulip was to invite a rough and tumble fight. Strange, too, the robin defending its own territory was always able to rout the intruder.

Anyone attempting to locate a brilliant red and black scarlet tanager as he sang his hoarse carol from high in a tree, can surely name another way in which trees serve birds—as protection against their enemies. I have witnessed a group of bird watchers try for fully five minutes to find a male tanager hidden in overhead branches. This bird, like so many others that are brightly colored, has learned the art of being inconspicuous. It can place the leaves between it and its supposed enemies with a skill that commands admiration.

The protection of trees is sought by many birds at many times and for many reasons. Surely the inner branches of trees serve as havens for birds driven in by storms. In summer, the branches give sanctuary to birds seeking shelter from the sun. Birds in migration come to roost in trees, sometimes in immense flocks, where they rest in safety until ready to continue their journey.

Although comparatively little is known concerning the roosting habits of birds at night, one undisputed fact is that many seek the shelter and protection of trees. Indeed, it was this factor more than any other, perhaps, that led to the extermination of the passenger pigeon. Market hunters capitalized on their communal roosting habits and killed thousands as they slept at night.

Today, hunters occasionally are able to kill great numbers of crows by seeking out their communal roosting places in trees. There is such a roost near my home. Crows come for many miles to congregate in this grove at dusk where they settle for the night with raucous cawings. At dawn they again scatter to favorite feeding grounds.

Birds probably welcome the protection of trees during the late summer molt more than at any other time. Although passerine birds do not lose their power of flight as do many waterfowl during this period, it is, nevertheless, a time of illness during which birds seek seclusion.

The molting of birds is one of many awe-inspiring phenomena in nature, a sensational action cloaked with secrecy. All birds pass through a complete molt at least once a year. During this time they lose their feathers, but not all at once. Wise nature arranges it so that a feather is dropped from the wing and tail of one side of the bird while corresponding feathers are dropped from the other side. When new feathers have



Exposed tree roots along the bank of streams offer unusual nesting places for some birds. Here is the protected home of a Louisiana water-thrush

started to grow in these gaps, another pair is shed, and so on until the bird has acquired an entirely new plumage. By this symmetry, the bird is not robbed of flight nor is it thrown off balance.

Everyone is familiar with the sentinel crow that perches high on a dead stub keenly alert to danger. This fact alone would verify the next use of trees by birds—as observation posts. Certain hawks use trees for observation, particularly the accipiters that hunt by dashing from hidden perches. Even the little flycatchers have their favorite tree perches from which they snare passing insects.

There are other ways in which birds, directly or indirectly, depend upon trees. For example, certain birds use the bark of trees as storehouses for food. The sight of a nuthatch hammering a seed into a crevice in the bark is a common one. Members of the shrike family use tree thorns as impaling places for prey.

The list is much longer, but it is long enough here to present ample evidence that the tree is in no way indebted to the bird for the latter's consumption of harmful insects. Or, should I say that whatever indebtedness is incurred is paid back many times over by the tree.



Protective camouflage is provided by leaves for many ground-nesting birds. The ovenbird, with its picturesque nest, offers an outstanding example

"BRUSH PATCH" FORESTRY

Work With What You Have on Your Brushy Woodlot—but Before Lending Nature a Hand, Find Out What She is Trying to Do

By HENRY H. TRYON

THE motor trip from Cornwall, New York, to Boston is, if I remember correctly, about 220 miles. It is a pleasant ride. You go through a portion of eastern New York, a goodly slice of Connecticut, and quite a section of the Bay State. The first few miles carries you through the steep, wooded granite ridges of the Hudson Highlands; then, when you are about halfway between the Hud-

son and the Connecticut boundary, you emerge into rolling, open country, much of which is now under cultivation. And for a part of the route you will traverse the flat, black fertile lands of the famous Connecticut tobacco country.

But seldom will the landscape be entirely free of woodlands of some sort. You will be constantly seeing woodlots, large and small, occupying land which

was obviously farm land or pasture at some not-so-distant date. Perhaps you wonder how it can be so positively stated that such areas were formerly worked? That is precisely what I want you to ask. For the evidence is written with unmistakable clarity in the species composition of these "brush patches."

Think back a moment to your last drive through this section. What was the most common tree that you can recall? I'll lay a small stake that gray birch and redcedar were the leaders. For these are the dominant tree species to invade abandoned fields (see "Trees as Living Communities," February, 1944, issue). The cedars are planted by birds, while the gray birch, with its small, very light and winged seed—

some 50,000 to the pound—can well attend to its own regeneration problems. Such "pioneer" species, along with others such as red maple, the cherries, white ash and possibly aspen are quick to provide cover for such open and unshaded portions of the earth's epidermis.

But these primary invaders are usually rather short-lived. Nature sows them in profusion on open areas where their prolific seedfall, their high germination percent and their rapid growth will supply quick protection to the exposed soils. And as they die out their places will be taken over by the more valuable and slower-growing species such as the oaks, sugar maple, hickory and the like. For seldom do these pioneers reproduce beneath their own shade. To complete this curiously inexorable shift in the tree population from stands of pioneer weeds to associations of higher commercial value, often takes several decades. And since the cry today is for the production of more and better timber, why not hasten this inevitable change? It can be done.

It is quite true that the primary or pioneer tree associations are not invariably the same for every type of soil site. But throughout the area in question you will usually find the line-up about as set forth above. And it is equally true that the interval between the appearance of the pioneers and the later establishment of the more valuable climax or perhaps sub-climax associations, can be greatly shortened by careful, observant study combined with an occasional afternoon's work with hatchet or machete.

For example, take the familiar setting of gray birch, red maple, cherry and redcedar. By the time these invaders have reached a height of around ten to fifteen feet, a little scouting about on your part will probably reveal that an understory of a totally different composition is becoming established beneath the pioneer canopy. You will probably find this includes white ash, with some red and white oak and perhaps some sugar maple and hickory—all valuable species. Now, if the primary stand be left entirely to its own devices the over-



Ferns, mosses, shrubs and seedling trees are all employed by nature to cover exposed soil, which she dislikes

wood will in time die off, leaving your commercial species free to grow. But they will have a tough time of it. To begin with, they will be forced to endure too much shade for too long, which is no help at all; and even worse, their tender leading shoots and trunks may be rubbed, bent, distorted and even broken off in plain mechanical competition with the limber, whippy pioneer crowns.

Now, from time to time as you make your rounds, you will find primary individuals which are obviously unhealthy and are preparing to wink out. So why not remove them now? Each little break

tactics will only give you cause to tear your hair later on, when the inevitable crop of aggressive pioneer sprouts appears and smothers your good seedlings even more thoroughly than did their parents. No,—don't hurry matters. The whole strategic fabric may be summed up "First, find out what nature wants to do; then lend her a hand."

Probably the total area of all the brushy woodlots visible on the trip mentioned would make a large figure. Consider the pleasant financial effect on the local domestic economy were each of these lots accorded but the simplest form

harvesting, quickly and inexorably to the indigenous associations? This practice of introducing strangers just doesn't seem to make sense. Why not work with what is already at hand?

In my particular district, for example, we know well that the oaks and the white ash will seed plentifully and grow well if given a minimum dose of mild attention. Certainly natural regeneration is far cheaper than artificial planting; and the small cost involved in "tending" a crop of native hardwood seedlings is microscopic compared to the expensive battle you must wage here.



Planting pines in old fields does not always work out. Here the hardwood seedlings are striving successfully to overtop them



Gray birch first invaded this field—but many should be removed to make room for understory of more valuable oaks, maples and ash

thus made in the crown canopy will admit a few more calories of sunlight to the struggling and somewhat suppressed desirable species forming the new understory. Nor is it always needful to delay such cutting work until ill health appears in the pioneers. Often, beneath sturdy birches or cherries or red maples you will find beautiful straight young hardwood stems which are just ready to enter into direct physical competition with the overwood crowns. The periodic removal of just enough of these harmful individuals to free the good trees coming in beneath is a simple matter.

But don't think for an instant that you can just go in and rip these offenders out wholesale in one operation. Such

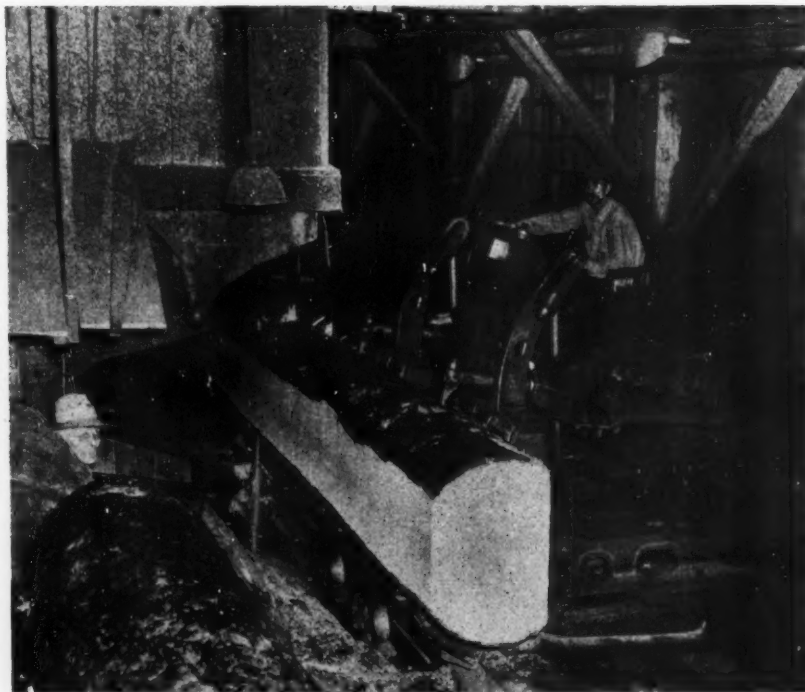
of cultural attention. Even should the final harvest be only wood fuel, both the quantity and the quality of the yield would be very considerably improved. So why not make a call on your woodlot next Sunday, and really get acquainted?

It is this writer's belief that "forestry begins with the forest." The establishment of a general policy of working to improve the density, composition and quality of existing wild growing stocks is the most logical and direct road to the goal of increased wood production coupled with the maximum profit. Why spend time and money in trying to produce stands of exotic species which may perhaps do well for one rotation but which will revert, following their final

to bring a coniferous plantation through to where it can go it alone.

Suppose the visible woodlots mentioned above total 50,000 acres. If left to themselves, they may produce at most around twelve cords of mediocre fuel an acre, plus perhaps a few feet of sawtimber. But could these young stands be nursed and tended a bit as suggested, the yield of both fuel and sawlogs would be smartly increased while the quality would be upped several notches as well. Such cultural work gives every indication of paying a handsome cash return. And when all is said and done, that is the actual goal of any sort of applied forestry in this country.

EXIT WASTE



When this pine log has completed its journey through the mill, every bit of usable lumber will be ready for the market in finished products

By CHAPIN D. FOSTER

manufactured at the Biles-Coleman mill would be difficult—there are too many. Take mouldings, for instance. The layman might gasp at the idea of a mill turning out a thousand different kinds, but at Omak this modern plant manufactures nearly 10,000 types of mouldings. Right now, of course, a good part of the mill energy is devoted to war products, especially boxes for ammunition, equipment and foodstuff. But parts of bedroom furniture, tables, booths and cabinets are manufactured practically every day. And every week seven or eight carloads of casket boxes leave the mill—eighty-five percent of all the casket boxes used in the country.

In prewar days, the mill manufactured an interesting line of card tables. They were filled with pine inlays of many colors—all natural. When the company's tree farm was dedicated, former Governor Arthur B. Langlie was presented

ONE of the finest examples of intensified mill and woods operations to be found anywhere in the country has been developed out in central Washington. At the sawmill end of the Biles-Coleman Lumber Company mill at Omak, logs are pulled up the slip at the rate of 200,000 board feet a day, and only finished products leave the other end. There is nothing left for the waste burners and there isn't a stick of lumber to be piled in the yard. That spells utilization in big letters. It also spells employment. As a result of this type of utilization, three times as many people are employed in the company's plant as would normally work in a mill of this capacity.

Nor is efficiency at Omak confined solely to the mill. In the woods the company is greatly interested in growing trees for future timber crops, and its lands were among the first to be included in western pine tree farms. Its cutting program follows sound forestry principles, and fire protection is an important phase of its management plan.

To enumerate all of the different items



Small pieces of lumber, formerly waste, are fed into these glue-clamp machines to emerge as panels for shelving and many other purposes

No Piece of Wood Is Too Small to Go Through This Progressive Mill at Omak, Washington

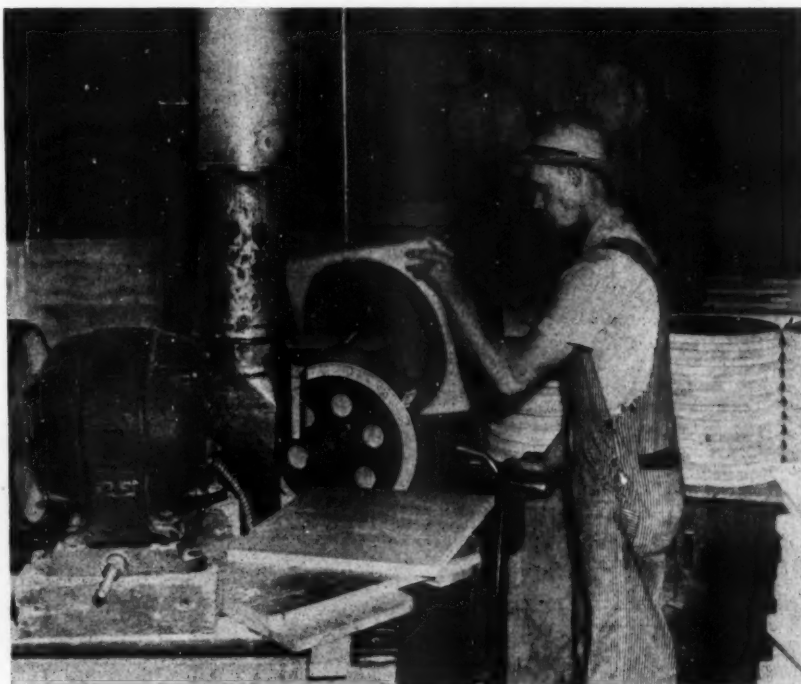
with a table in which more than 1,600 pieces of pine were used.

Utilization of different lengths and widths of boards has been developed to a science at Omak. If a board is sixteen inches wide there is a use for it, just as there are items to be manufactured out of pieces no more than an inch wide. Small pieces may end up as parts of box shooks or they might go into the gluing machine to emerge as panels for shelving. At Omak, there is no piece of wood too small to find some use.

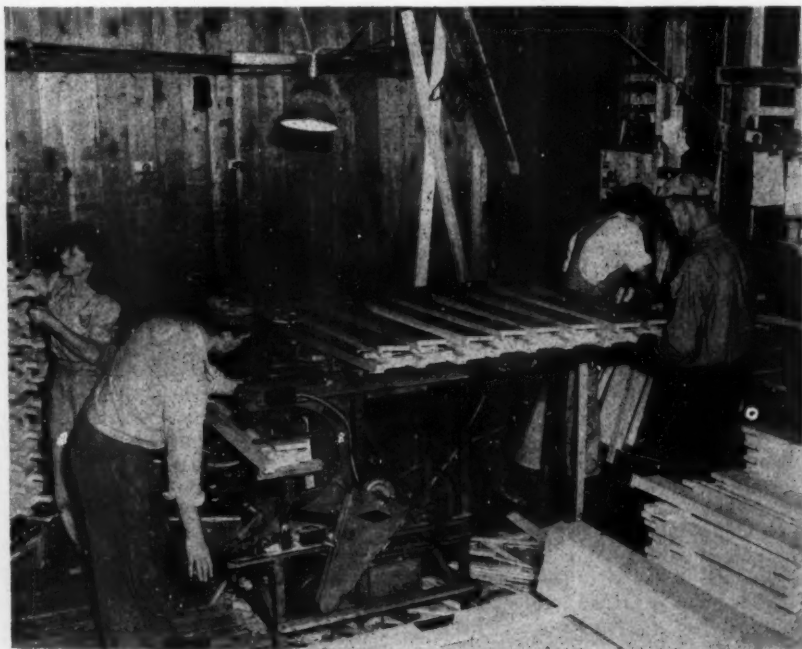
Even boards with defects land in the salvage department where the art of lumber surgery has been highly refined. Pitch pockets are routed out, knot-holes are plugged and glued patches are inserted where needed.

Nothing is produced for storage at the Biles-Coleman mill. Nor does the company have lumber to sell. Every board is utilized for manufactured products and the daily output is routed to warehouses from which railroad cars are loaded. Before manufacture, the lumber goes to the dry-kilns—there are eleven at Omak—so that it may be dried uniformly and to the degree required for the various uses.

Among the interesting experiments being conducted at Omak is that of log



One of the many war jobs of this modern mill is the manufacture of circular drum heads. Boxes for ammunition and foodstuffs are also made



There is a machine for everything—even for tying bundles of pine window frames—yet more people are employed than normally would be used

storage. The millpond holds less than three days' supply, which means that logs must be stored elsewhere to insure a steady supply for the mill. Part of the answer is Omak Lake.

Lake storage ordinarily would mean many raised eyebrows in the lumber world, but it so happens that the waters of Omak are highly mineralized and experiments have shown that pine logs can be stored in these waters over a long period without danger of "blue-staining." The lake storage facilities thus become of great importance for spring operations when logging and hauling are difficult.

Although the Biles-Coleman company has intensified its utilization to a remarkable degree, not a man in the mill or woods believes the ultimate has been reached. They know that new developments will come about—new processes, new markets—and they are ready to keep pace with whatever changes are made. Access to public timber ready for harvest, plus the company's own holdings, all of which are logged selectively, assures the Omak plant a perpetual supply of timber and the community a continuing payroll.

FLOTSAM AND JETSAM SPEAK FROM T



Microscopes and other paraphernalia, in the hands of wood experts, revealed the timber in this ancient wreck to be white oak—but failed to give any clue of its origin

A PIECE of waterlogged keel or rib or mast, a weathered cribbage board, a wood model of a shoe—these are among the flotsam and jetsam of the seven seas that occasionally are sent for identification to Arthur Koehler, wood technologist of the Forest Products Laboratory at Madison, Wisconsin. They come prospectively enough, through the mails. But the objectives of the senders are varied; one may be a seeker of some golden treasure locked in a sunken hull; another may be following some clue of historical significance; a third may be spurred by personal curiosity. The requests that accompany these relics, however, follow a single pattern: what light will identification of the wood throw on the history and identity of the vessel from which they came? With microscopes, photomicrographs and other paraphernalia, Koehler and his assistants attempt to answer some of the riddles of the deep.

War hasn't shut off the flow of these inquiries. Last year, from the Trobriand

Islands east of New Guinea, came specimens of a wrecked vessel sent in by Robert J. Doyle, war correspondent of the *Milwaukee Journal*. He wanted to know whether the craft, battered to wreckage on a reef, was of American or European origin. Koehler's answer was that it was of neither, if the species of wood from which the keel, ribs and mast were made offered any sure clue. The keel, he determined, was made of some species of the genus *Agathis*, native to the Southwest Pacific from the Philippine Islands to New Zealand, including the Malay Archipelago and parts of the Malay Peninsula, and sometimes known as kauri or kauri pine. The mast was of the *Dipterocarp* family, which includes some 380 species occurring almost exclusively in the Indo-Malayan region, including the Philippines. Together, these identifications tied the vessel's origin pretty well to the region of the Pacific Southwest in which the wreck was found.

A third specimen from the same ves-

sel, identified by Koehler as balsa, failed to fit so well into the general picture of the ship's origin. Balsa is native to South America. It is known, however, that some plantations of this species have been made in the Philippines, and the wood may have come from one of those. The fact that it was neither decayed nor damaged by marine borers indicates that the vessel could not have been wrecked more than a year or so before it was found, as balsa would deteriorate rather quickly in a warm, humid climate. Furthermore, glue adhering to the piece was identified as a urea-formaldehyde synthetic resin. These glues have been used only in recent years.

J. T. Holzbach, superintendent of the Mariners' Museum at Newport News, Virginia, sent Koehler specimens of a wreck uncovered on the beach near Manteo, North Carolina, in 1939, with a request that it be determined, if possible, whether the wood was of European or American origin. Koehler identified the

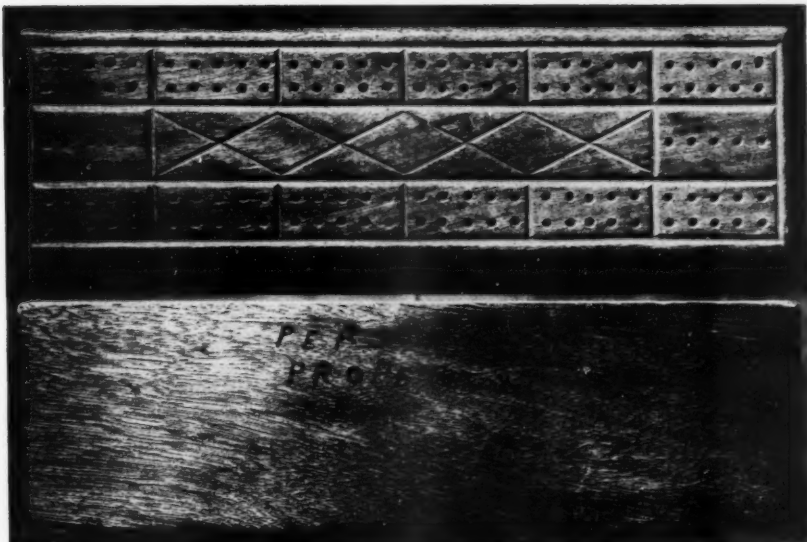
THE DEEP

How Wood Technologists Attempt to Solve Some of the Riddles Cast Up by the Seven Seas

specimens of several timbers, treenails and treenail wedges as being made of some species of the white oak group. Since there is not, however, sufficient difference between the structure of the wood of American and European species of this group, it was not possible to answer Holzbach's query. A sample of the ship's mast had the structure of native red pine, *Pinus resinosa*, but this wood is microscopically identical with that of Scotch pine, *Pinus sylvestris*, the common pine of Europe. Hence, it was of no value in definitely ascertaining the vessel's origin.

Several pieces of wood from a ship that sank off Lewes, Delaware, in 1798, were sent to Koehler in 1932 for identification. The hulk was one of several sunk in the vicinity, in one of which a \$5,000,000 treasure in gold was reputed to be locked. It was hoped that Koehler's identification might guide searchers for the treasure to the right wreck. Some of the pieces were found to be Jamaica dogwood, *Piscidia piscipula*, a durable wood sometimes used for boat-building; another part was identified as a species of *Juniperus*, but whether from the United States, the West Indies, or some other land could not be determined. Obviously, however, the hulk was not of European origin.

A sample from a mast of the Russian ship *Neva*, wrecked near Sitka, Alaska, in 1813, and submitted for identification



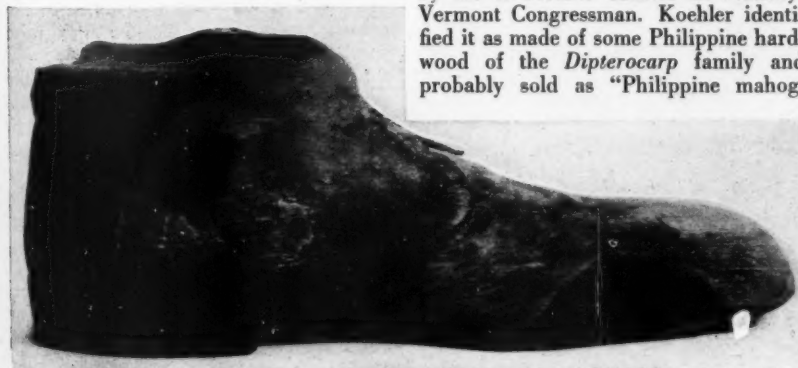
"Personal property of . . . U.S.S. Cyclops" is the cryptic message scratched on this cribbage board washed ashore in Florida, and identified as a Philippine hardwood. The *Cyclops* disappeared in 1918 with its entire crew

by B. Frank Heintzleman, regional forester of the U. S. Forest Service at Juneau, was found to be Alaska yellow-cedar, *Chamaecyparis nootkatensis*. The masts of this ship had been salvaged after it was wrecked and were used as supports for Saint Michael's Cathedral in Sitka. Replaced more than a century later, the former masts came to Heintzleman's attention and he submitted the sample in 1940 with the comment that, according to Bancroft's *History of Alaska*, the *Neva* was purchased in London by the Russian Government about 1802, and had been used on a number of exploratory voyages, including one to the Sandwich Islands in 1808. The *Neva* may have been purchased in London, but surely it was not fitted with Alaska yellow cedar masts at that early date in any of the shipyards in the British Isles.

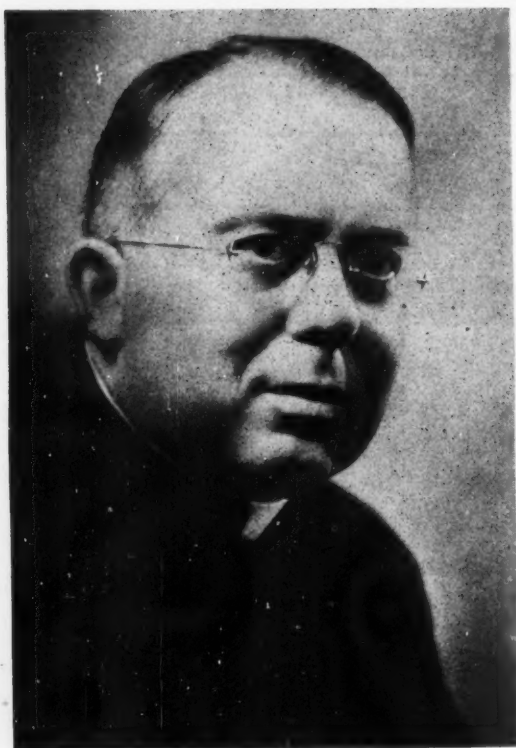
A handmade cribbage board washed ashore or uncovered by a severe storm near Saint Petersburg, Florida, early in the summer of 1937, was sent to Koehler by the Honorable Charles A. Plumley, Vermont Congressman. Koehler identified it as made of some Philippine hardwood of the *Dipterocarp* family and probably sold as "Philippine mahog-

any." What lent an aura of mystery to the wood, however, was not its species, but a cryptic message scratched on it: "Personal property of . . . U. S. S. Cyclops." The wave-worn board evidently is the only known relic of the Naval collier *Cyclops*, which disappeared in 1918 with its crew of 309 after leaving the Barbados, West Indies. Wood of the kind of which the board was made could reasonably have been carried aboard the collier for repair purposes. Unfortunately, the owner of the cribbage board had not inserted his name, which, if he had been a member of the crew of the ill-fated collier, would have made the flotsam evidence even more direct.

Mysterious also was the number "1492" scratched on a carved wood model of a shoe found by a bathor on the bottom of Lake Pontchartrain, Louisiana, and sent to Koehler as of possible historical connection with a famous date. Koehler's identification of the wood as white pine, however, rendered the inscribed number meaningless because white pine could not have been used in that part of the country until long after the advent of the white man in the New World. More likely some one whiling away his time floating down the Mississippi River on a raft of white pine lumber during the latter part of the previous century carved out this masterpiece.



The number "1492"—the year Columbus discovered America—is carved on this wood model of a shoe found on a lake bottom. Interesting possibilities quickly vanished when it was identified as white pine



Northwoods "SKY PILOT"

Father Frank A. Seifert Crusades Against Absenteeism in Lake States Lumber Camps

By WILLIAM J. DUCHAINE

lost that never can be regained. Then, if they are key men, they keep several other workers idle."

When production began falling off sharply early in 1943, timber operators held a series of meetings to find a remedy. The already serious manpower shortage was aggravated by a high rate of absenteeism. Higher wages for many lumberjacks meant more money to spend on bigger and longer drink-

ing sprees. There also was much floating from camp to camp. In many instances, timber jobbers would have completely new crews before the season's end.

The lumber camp that put up the best chow was the ever-shifting mecca of the transient woodsman. Timber operators appealed to OPA for more liberal allow-

ances of meat and canned goods, but absenteeism persisted. Various recreational programs were considered, and one operator even gave consideration to the idea of bringing in professional entertainers.

Finally, George Wallner, WPB representative at Iron Mountain, recalled that Father Seifert, who was pastor of the church in that city before his transfer to Spalding, had visited Japan, Manchuria, Korea and China in 1937, and had an interesting story to tell about our Nipponese foes. Father Seifert also knew the lumbering business and the men who work in it.

Wallner decided to make a test. He induced Waino Komula, Finnish-American timber jobber, to bring his entire crew of 150 woodsmen to Houghton to hear a talk by the priest. Officials of the War Production Board and the U. S. Forest Service came from Milwaukee to observe the experiment.

Father Seifert likes to talk of that first gathering. "During the dinner, the lumberjacks around me were all talking Finnish. 'What am I going to do with a bunch like this?' I asked myself. However, I gave my talk in English, and after I had finished I was surprised to have some of them rise to their feet and ask questions in perfect English. I learned later that most of them had attended high schools in the district."

Out of this test came worthwhile results. The young lumberjacks reported they were often criticized for not producing as much as the woodsmen did in prewar years. They insisted they were just as good workmen, but pointed out that their saws were "too soft," with the result that they were losing much time because of the frequent need for refiling. An investigation revealed there was truth in their claim, that the saws they were using were of inferior quality. The matter was taken up with the WPB, and the manufacturer was allotted additional alloy steel for better saws.

Since his initial appearance in June, 1943, Father Seifert has spared two or three evenings each week from his pas-

A MODERN "sky pilot" visits the lumber camps of the Upper Michigan and northern Wisconsin timber country these days. He wears the Roman collar and the traditional black of the Catholic priest's garb, but he comes with no dire warnings of eternal damnation like the old-time lumberjacks received from the Northwoods circuit riders of yesteryear.

For Father Frank A. Seifert, pastor of The Church of St. Francis Xavier of Spalding, Michigan, preaches a new kind of gospel—the gospel of all-out production. He is WPB's official exorciser of the devil of the wartime lumbering industry—absenteeism.

In bygone days, the lumberjack went to the woods in the fall, worked hard all winter and did not return to civilization until spring. With his accumulated winter's stake, he proceeded to enjoy or suffer his customary debauch of drink. His money spent, he returned to the woods to bring down the river drive and, that ended, spent the summer working in the sawmills or waiting at his boarding house for the next season's operations to begin.

"The lumberjacks are defense workers now," Father Seifert explains. "They demand a high wage, and are entitled to it. Unlike the old-time lumberjacks, they draw their pay every two weeks, and too many of them have been going to town on their week-end binges. Some return to work on Monday, others on Tuesday and Wednesday. Thus, valuable time is



The Northwoods priest visited Japan in 1937—tells loggers about their Nipponese enemy

toral duties to speak at lumber camps, situated anywhere within a 200-mile radius. Up to mid-summer, he had visited about sixty camps and addressed more than 5,000 lumberjacks.

With Father Seifert goes the "Show Boat," a motorized truck equipped with electric generator to operate a sound movie projector used to show the latest war pictures. In opening his talk, he tells an amusing joke on himself, purportedly relating to a conversation he once had with a lumberjack, and then begins his exposition of the woodsman's duties in the war effort.

"I have come here," he states, "to tell you how important you are in this war effort. Lumber is the Number 1 bottleneck now. It is more important than steel, copper, or aluminum."

He then describes the year's trip he made to the Far East—to the Philippines, Hong Kong, through China northward on the Trans-Siberian railway to Mukden and Harbin in Manchukuo; by camel caravan into Inner Mongolia; and back to Korea and Sakhalin Island. He concludes his travelogue by relating his experiences in Japan, where he lived in native fashion for several months. He was standing on the Marco Polo bridge in Peiping, he tells them, when the Japanese fired the first shot in the "incident" that started the Sino-Japanese war.

United States navy passed in review before President Wilson," he states. "And I was at Yokohama when the entire Japanese fleet passed in review before Emperor Hirohito on his birthday anniversary. I decided then that if we ever got into trouble with Japan we would have a tough time of it.

surely not going to let your own flesh and blood go empty-handed in the face of the enemy. Too many manpower hours are being lost in the woods due to absenteeism. This is not justifiable in critical times like these."

For several weeks this year, Father Seifert was accompanied on his visits



Lumberjacks listen with rapt attention as Father Seifert urges them to stay on the job and produce more timber for the war



He lived in the home of San Jiro Murata, son of the deceased surgeon general of the Japanese army, when he was in Tokyo, and had an opportunity to study the Nipponese mind.

"By coincidence I was at Newport News in World War I when the entire

"You men are on as important a fighting front right here in the woods as your sons and brothers are in uniform overseas," Father Seifert continues. "They depend upon you for the materials they need to fight with. You are the men behind the men behind the guns. You're

to the camps by Sergeant Dudley Brice, four-times wounded veteran of the New Guinea fighting, who told of his war experiences. With him also is an extensive exhibit of wooden articles with special wartime uses.

As to results, the foreman of one camp reported that he had no men leaving camp the week following Father Seifert's appearance. In another camp, a chronic absentee went to the clerk the following morning, checked out an ax and saw, and promised to go to work for the duration. In one place, meetings were held just before July 4, a holiday that is usually an occasion for riotous celebration for most lumberjacks. The morning of the fifth a drunken "jack" stopped a business man on the street in one of the sawmill towns and asked to be taken to the camp.

"That priest told me I could go out over the Fourth, but to get back to work right afterwards," the sobering-up woodsman said, appealingly. "I am ready to go back if you will help me."

The cry of "Timber! Timber!" has a truly patriotic ring to it in the Northwoods country nowadays.

RED ALDER

Alnus rubra, Bong

By G. H. COLLINGWOOD

VISITORS to the Pacific Coast sometimes mistake the smoothly rounded trunk and mottled white bark of red alder for that of birch. Like the birch it is gregarious, loving the company of other trees, particularly those of the same species. Red alder typically occurs in groups or in dense groves along water courses and in sheltered coves where soils are moist and fertile and where rains are frequent. Usually three or four shallowly rooted stems are close together, the tapering boles inclining outward

to present their narrow, pyramidal crowns to the light. Groves may occupy several acres of stream bottoms or moist slopes. Even in mixture with conifers and other hardwoods—as is often the case—it occurs characteristically in groups and seldom singly.

Red alder is the most important of six alders found in the United States and neighboring territory. Four of these occupy the Pacific region. Many other species existed during earlier geological periods.

Wherever soil and moisture are adequate, alder seeds in promptly after old growth forests are removed by logging, fire, or other causes. Being relatively short-lived it gives way to more enduring cone-bearing trees. Meanwhile, it serves to enrich those areas and provides a nurse crop under the protection of which more valuable trees get started. Accordingly, it is a useful silvicultural tool and being comparatively fire-resistant is sometimes planted for fire-breaks where new crops of Douglasfir, hemlock, cedar, or spruce are desired.

A common practice is to drill alder seed (with hand drill) or set year-old seedlings



Red alder characteristically occurs in groups or in dense groves along water courses and in sheltered coves. Winter (right) reveals a tapering bole inclining outward to present a narrow, pyramidal crown to the light. Under favorable conditions red alder often attains heights of from 100 to 130 feet



along the margins of gravelled truck and rail logging roads. Such roads are built through the forest area for logging use and later abandoned. Usually moisture along the road margins is sufficient to assure rapid growth. Within a few years the little trees spread laterally by sprouting as well as by seeding and eventually fire lines ten to twenty yards in width are established. By the time they are no longer needed as protection the older individuals yield merchantable logs.

Red alders which are planted for roadside shade and home beautification develop broad, roundly pyramidal crowns quite unlike those of forest grown specimens. In dense stands, upon favorable sites as in the Puget Sound region, adult red alders attain heights of 100 to 130 feet and are one to three feet in diameter at breast height. Ordinarily they mature in about fifty years when they are eighty to one hundred feet tall and fourteen to eighteen inches in diameter. Trees seldom live over eighty years.

The leaves are smooth and deep yellow-green on the upper surfaces, paler beneath and coated with short, rusty hairs. They are three to six inches long, one and one-half to three inches wide, conspicuously straight veined, and the doubly toothed borders are slightly curved toward the under surface. They are shed in the autumn while still green.

Male and female flowers are in tassel-like clusters five to six inches long and about a quarter inch thick. The female flowers are small and red scaled. They mature into brown-orange cones containing fifty to one hundred small, flattened nut-like seeds, each surrounded by a membranous wing. Large numbers scattered by the wind insure crops of alder seedlings on burns and logged areas.

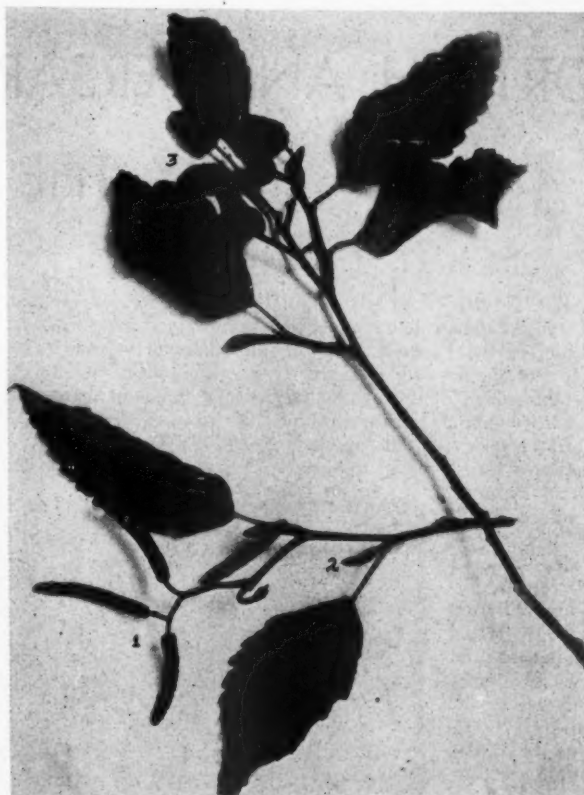
The slender to moderately stout, bright red to reddish brown twigs are marked with tiny pale breathing pores. The winter buds are about one-third of an inch long, covered by two or three dark red hairy scales. A cross section of a twig reveals remotely triangular, greenish white pith.

The bark is smooth and mottled light gray to whitish. On large trees it cracks into square-cornered segments. Tree trunks and larger limbs are often spotted with greenish moss.

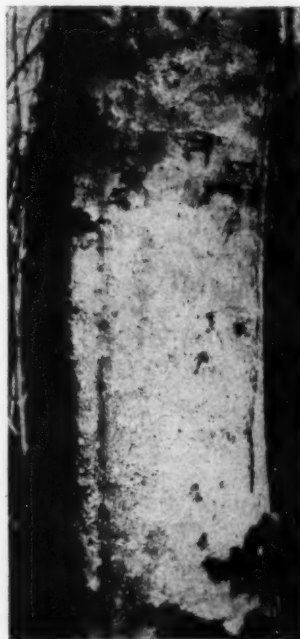
Red or Oregon alder is the most valuable and most plentiful of the few hardwoods of the Pacific slope. Its natural range extends from southeastern Alaska, along the coast of British Columbia, Washington, Oregon and California. It is also found along stream courses in Northern Idaho, but seldom grows farther inland than seventy to eighty miles, or more than 2,500 feet above sea level.

The present stand of red alder as reported by the Forest Service in 1940 is close to 2,640,000,000 board feet. The average annual cut for the ten-year period 1931-1940 was approximately 23,000,000 board feet.

The pale yellow wood is generally close textured and straight grained. It is fairly soft and workable, moderately strong, but lacks durability when used in contact with the soil or when exposed to the weather. Its ability to hold paint or enamel and to be glued, together with its availability has led to extensive use in the manufacture of furniture. Wooden shoes are carved from alder, as well as such wooden novelties as salad sets, bookends, and wooden-soled sport shoes. Alder is also used in western Washington and Oregon for fuel and fireplace wood.



Straight-veined leaves, from two to six inches long, are smooth and deep yellow-green on upper surface. Flowers are in tassel-like clusters, the male (1) about a quarter inch long, the female (2) small and red scaled. Cones (3) are brown-orange



Bark is gray, mottled



Natural range of Red Alder

FORTIETH ANNIVERSARY IS OBSERVED

BY THE U. S. FOREST SERVICE

PRESIDENT ROOSEVELT, in a 300-word congratulatory letter addressed to the Chief of the Forest Service on the occasion of the fortieth anniversary of the establishment of the Forest Service, said the economic future of America cannot be wholly safe until the future of the nation's forests is assured.

"Great tasks remain ahead in forestry," Mr. Roosevelt said. "To most of our forests, forestry is still unknown. By actual results in peace and war, we have more recently seen the forest prove its value to the soldier and sailor at the front, the farmer and the city man at home, and to all our great lumbering and wood-using industries and the millions they employ.

"Before the economic future of America can be wholly safe, the future of our forests must be assured," the President said.

The President's letter was read by Chief Forester Lyle F. Watts, at a "family meeting" on February 1 of more than 600

Forest Service personnel and members of their families in the Department of Agriculture auditorium. Mrs. Roosevelt; Claude R. Wickard, Secretary of Agriculture; Gifford Pinchot, first Chief Forester when the Bureau was established in 1905; Henry S. Graves, who followed Mr. Pinchot as Chief Forester; and several Forest Service officials and veterans, participated in the program.

In commending the Forest Service, Mr. Roosevelt said, "You have a right to be proud—all of you, every member of

the Service—for the Service has done great things. . . . It has made forestry known to America, it has turned many enemies of forestry into staunch friends, it has won the confidence and cooperation of the people, and it has led the way in making American forestry an outstanding achievement."

farm vehicles with alcohol made from wood instead of gasoline, and a host of industries using wood for the production of varied paper, plastic and chemical products.

Mr. Pinchot reviewed his early experiences as first head of the new Division of Forestry set up in Agriculture in 1898

and later as first Chief of the Forest Service beginning in 1905. He contrasted the 1898 budget figure of \$28,000 for his division and its eleven employees with the present appropriation of \$59,000,000.

Secretary Wickard complimented the Service on its accomplishments of the past and added: "You have built an organization which is about the most efficient and the most enthusiastic group I have ever known inside or outside of government.

"When this war is over your responsibilities will increase," Secretary Wickard said. "First, there is the big task of restoration, long neglected before the war and now increased by the devastating cutting for the war. Then there is the new field just unfolding—the chemistry of forestry. I refer to the new utilization of forestry products. In the future we must think of the growing of trees more in terms of growing a crop that not only must give us a sustained yield but one which conserves our soils and water and enriches our lives."

Sarah Lillian Acker, draftsman in the Engineering Division of the Forest Service for thirty-nine years, presided.



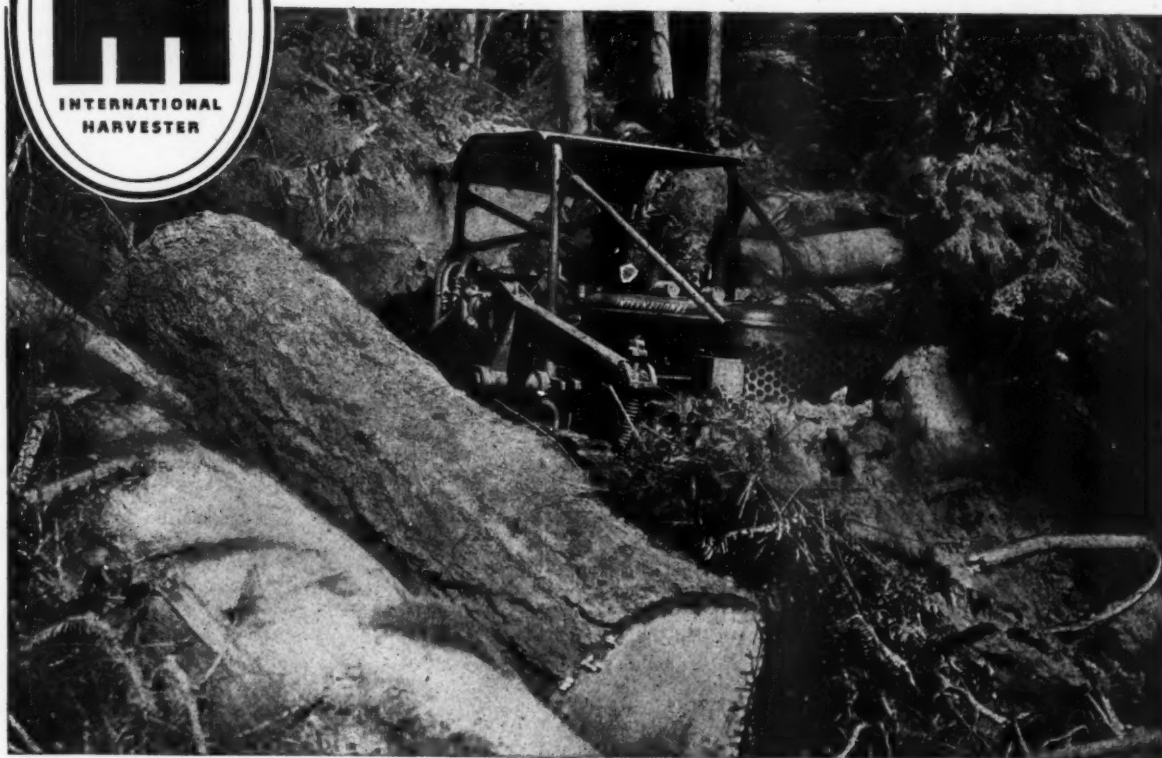
Gifford Pinchot, pioneer Chief Forester, and Lyle F. Watts, present Chief of the Forest Service, on the occasion of the Service's fortieth anniversary celebrated in Washington on February 1. They are shown examining wood products developed by Forest Service scientists

Mr. Watts, after reading the President's letter, predicted that forty years hence technical advances will have practically eliminated fire losses on the nation's forest lands and that public control of cutting and other forest practices on private lands will have been accepted as "an essential part of the American way to insure security for both the individual citizen and the nation." As for the future of forestry, he described timber forty years from now as a recognized major farm crop in the eastern part of the nation; operation of many



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International Engines, TracTracTors and Wheel Tractors will play a major part in the making of the Post-War world. As all of these are fighting, now, on battlefield and home front, they will fight

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Around the States . . .

Dean Samuel J. Record Dies

Samuel J. Record, dean of the Yale School of Forestry, and internationally known wood anatomist, died suddenly on February 13. Professor of forest products at Yale since 1917, he was appointed dean in 1939, succeeding Henry S. Graves.



Samuel J. Record

Dean Record achieved an international reputation in the fields of wood anatomy and tropical forestry, and was chiefly responsible for the development of Yale's studies in tropical woods. Under his direction, the Yale collection of woods of the world has become the largest and most comprehensive, and now contains more than 36,000 specimens representing 11,100 different species. He was one of the founders and outstanding members of the International Association of Wood Anatomists, and was editor of the journal *Tropical Woods*, which he founded in 1925. In recognition of his outstanding work, Wabash College in 1930 conferred upon him the honorary degree of Doctor of Science. He was also a fellow of the American Association for the Advancement of Science, and an honorary member of scientific institutions in Chile, Venezuela and Colombia. He was the author of several technical books, including the monumental *Timbers of the New World*.

Dean Record will be succeeded at Yale by George A. Garrett, associate professor of forest products and professor of lumbering. A graduate of Michigan Agricultural College, Mr. Garrett

received his master's degree at Yale in 1923. From 1920 to 1922 he was instructor in forestry at Michigan Agricultural College, and in 1923 became professor of forestry and engineering at the University of the South. He joined the staff at Yale in 1925.

Logging Jobs Now "Critical"

Logging and lumber production, previously rated *essential*, have been reclassified as *critical* activities in a new listing issued by the War Manpower Commission. This assures workers in the woods and mills equal draft status with men in shipyards, aircraft and munitions plants.

Specifically included in the new list as critical activities are timber tracts and logging camps, cutting of pulpwood, wood for tanning extract, sawmills, and veneer, planing and plywood mills. Production of wooden parts of aircraft, ships, and other military equipment is also classed as critical.

Cooperage-stock mills, fire prevention, pest control, forest nurseries, and reforestation services are included in activities listed as essential, but not critical. Also included in this class are production of portable and prefabricated buildings, box shooks, wooden boxes and containers, and excelsior.

New Resource Commission in Arkansas

The Arkansas State Forestry Commission has been abolished by the Arkansas State Legislature in favor of a larger and more comprehensive Resource and Development Commission. Under the new act, Fred H. Lang, state forester, becomes director of a Division of Forestry and Parks, which is combined with divisions of publicity, geology, agriculture and industry, flood control, water and soil conservation and planning.

The new commission will have fifteen members, appointed by the governor for terms of five years. These will be selected, it is stated, with reference to their knowledge of and interest in the resources and development of the state. An executive director will be appointed by the commission with approval of the governor. Each division director is to be appointed by the executive director for two years and will operate under his supervision.

Experiment Station Directors Named

Important changes in the directorships of two of the twelve U. S. Forest and Range Experiment Stations have been announced by Lyle F. Watts, chief of the Forest Service.

Stephen Wyckoff, since 1938 director of the station at Portland, Oregon, and widely recognized as an outstanding conservationist, particularly in the West, has been appointed director of the California Forest and Range Experiment Station at Berkeley, California, a position which has been vacant for some time.

Dr. J. Alfred Hall, principal biochemist of the Forest Service, whose development work on processes for making alcohol from wood waste recently attracted nation-wide attention, has been named director of the Pacific Northwest Forest and Range Experiment Station at Portland, Oregon.

Coulter Florida State Forester

C. H. Coulter, assistant state forester for the past ten years, has been appointed state forester of Florida, succeeding H. J. Malsberger, who has resigned to become manager of the Southern Pulpwood Conservation Association.

A graduate of the University of Michigan's School of Forestry, Mr. Coulter has been associated with the Florida Forest and Park Service for more than fifteen years. During this entire period he has been engaged in applied forestry work throughout the state.



C. H. Coulter

Mr. Malsberger, who has directed the Service since 1940, will succeed Frank Heyward, Jr., as manager of the Southern Pulpwood Conservation Association with headquarters in Atlanta. Mr. Heyward resigned in February to enter private business.



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Launch Fire Prevention Campaign

With critical lumber shortages continuing as a threat to full war production, officials of the U. S. Forest Service, in cooperation with state forestry and conservation agencies, urge citizens in fire danger areas throughout the nation to join in the fourth Wartime Forest Fire Prevention Campaign, which began in the East and Middle West on February 1.

Emphasizing that nine out of ten forest fires can be prevented, R. F. Hammatt, campaign director, said that "thirty percent of all the man-caused fires are started by Americans who mean well and are patriotic, but who are careless."

The Wartime Forest Fire Prevention Campaign is conducted by state and federal forestry officials at the request of the nation's armed forces. The program for 1945, Mr. Hammatt said, will stress "the conviction that every individual has a responsibility and a patriotic stake in this emergency and that the problem can be met in a large measure through individual action."

Blister Rust Spreads South

White pine blister rust, advancing sixty-five miles farther south into valuable forests of California in 1944, extended the rust infection zone almost halfway across the commercial sugar pine belt, according to the Department of Agriculture.

This disease, a fungus that kills five-needled pines, was found on currant and gooseberry plants late last year in several locations on the Tahoe and Eldorado National Forests, reaching as far south as Amador County. The rust, which lives alternatively on sugar pine and currant and gooseberry plants, is kept under control by eradicating the wild currant and gooseberry plants growing within 1,000 feet of the pine stands.

Despite control efforts which have reduced its damage and slowed the rate of advance, this disease has spread steadily southward since infections were first found in northern California in 1936. Infection on pine is now common on the Klamath National Forest at the northern boundary of the state. Spotted infections on pine also have been found on the Trinity and Shasta National Forests in the Coast Range Mountains, and on the Lassen and Plumas National Forests in the Sierra Nevada.

Hoskins Named Seaboard Forester

Robert N. Hoskins, since 1942 extension forester with the Florida Forest and Park Service, has been appointed industrial forester for the Seaboard Railway, it was announced late in February.

A native of Iowa, Mr. Hoskins re-

ceived his B. S. Degree in Forestry at Iowa State College.

His appointment represents active continuation of a forestry program inaugurated by the Seaboard in 1937 and which was designed to promote sound forestry practices in its territory. In the six southeastern states—Alabama, Florida, Georgia, North Carolina, South Carolina and Virginia—served by the railroad there are 182,000,000 acres of land area, of which more than 100,000,000 acres are forested.

NLMA Appoints Uhl and Bahr

Harry G. Uhl has been appointed acting manager and Henry Bahr acting secretary of the National Lumber Manufacturers Association to carry on the executive duties of Dr. Wilson Compton, who recently resigned to accept the presidency of Washington State College. Both appointments are pro tempore to bridge the interim until a new executive officer of the association, who will be officially designated executive vice-president, is named by action of the association's board of directors.

Mr. Uhl has been associated with NLMA since 1920, first as general assistant to Dr. Compton, then as vice-president and secretary of the Timber Engineering Company, and, since last year, president of the TEC.

Mr. Bahr has for nearly a decade served as general assistant to Dr. Compton in inter-industry contacts for the American Forest Products Industries, the TEC as well as for the association, and recently was appointed legal counsel for the three organizations.

Poage Report on Guayule

Recommendation that the government disassociate itself from the production of guayule for any but experimental purposes was made in the Poage Report recently submitted to the House of Representatives. Other recommendations were that research be continued with a view towards encouraging the development of a sustained production by private growers to the amount of 80,000 tons a year—the figure proposed by General Eisenhower in 1930 as necessary to insure the country's rubber supply against future emergencies.

For the purpose, a definite floor price of around twenty-eight cents a pound for a seven to ten year period was suggested. The 31,000 acres of guayule already planted will, in any case, it was stated, be harvested, preferably by private interests. These operations would yield an estimated 600 tons in 1945 and 2,100 in 1946.

An over-all scrutiny of the rubber situation was recommended with a view toward the postwar possibilities of domestic production for domestic needs.

Western Association Elects Hayes

Edmund Hayes, chairman of the "Keep Oregon Green" Committee and president of the Row River Lumber Company, has been elected chairman of the Western Forestry and Conservation Association congress at Portland, Oregon. He succeeds George L. Drake of the Simpson Logging Company.

The association, in annual session, recommended that the western states gradually increase their appropriations for forest fire protection and other forestry projects until eventually such projects can be carried from state funds without depending upon contributions from the federal government. It also heard Professor Emanuel Fritz of the University of California cite the sudden upswing in Oregon lumbering and the attendant logging of young growth, and warn that the forest industry is in danger of committing suicide through over-expansion. Western lumbermen, he said, "should be thinking of the days when their industry must be supported by new stands."

Houses for Bombed-Out Britain

Thirty thousand temporary dwellings will be produced in this country, subject to the availability of lumber and other building materials, and shipped to England to meet the immediate needs of essential war workers in bombed-out areas, the Foreign Economic Administration and the National Housing Agency have announced.

The transaction, to be handled through lend-lease, has been worked out between the FEA and representatives of the British Government. The dwellings will be supplied at shipside, in panelized form for convenience of shipping and for ease of assembly on the sites in England where there is a critical shortage of skilled construction labor.

Out of about 13,000,000 dwellings in the United Kingdom at the outbreak of the war, 4,500,000 have been destroyed or damaged by enemy action.

Death Claims G. H. Lentz

Gustav H. Lentz, assistant forester in charge of state and private forestry of the eastern division of the U. S. Forest Service, died of heart failure en route to his Philadelphia office on January 3.

A native of Maryland, Mr. Lentz was formerly associated with the New York State College of Forestry, the Southern Forest Experiment Station, the Tennessee Valley Authority and, at various times, with industrial forestry. He had been with the Forest Service, with headquarters at Philadelphia, since 1936. Mr. Lentz was a graduate of the Yale School of Forestry, where he received his Master's Degree in 1917.

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Don't confuse the results obtainable from FMC High-Pressure Fog Fire Fighting with any other system. There's nothing like it!

In fighting fire with the most efficient fog—you must have high pressure. And that's what you get with the FMC Fog Fire Fighter.

The FMC High-Pressure Pump easily delivers and maintains 800 lbs. pump pressure—better than 600 lbs. nozzle pressure.

A Little Water Goes a Long Way

The high pressure gives you a combination of high velocity and finely-atomized water—just what you need to *blast, cool and smother* flame. Every droplet of water is broken up into thousands of tiny particles that can be "blasted" into the source of the fire.

One gallon of this finely-atomized water, properly used, has the fire quenching possibilities of many times that of low-pressure water.

Write—today—for complete information.

THE ORIGINAL
HIGH-PRESSURE FOG FIRE GUN



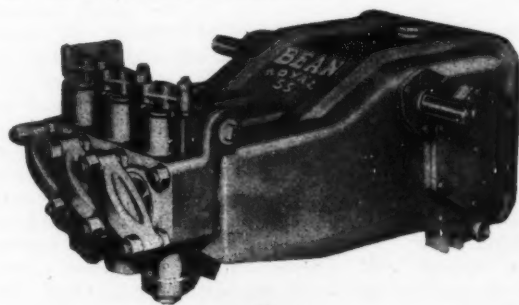
FMC FOG GUN IN ACTION!
Fireman is holding trigger release with his right hand and adjusting barrel with his left hand. By turning the barrel slightly, he can change the flow from a straight carrying stream to a wide fog pattern, as shown, and can get close enough to fire to do effective work.

600 lbs. AT THE NOZZLE!

The FMC Fog Fire Gun—built only by Bean—is designed especially for High-Pressure fire fighting.

Note these features:

- 1 **PROTECTIVE SPRAY.** Special spray protects face and shoulders from heat.
- 2 **ADJUSTING BARREL.** By turning barrel, flow can be changed from a straight "power" stream to a close-up fog for any type of fire.
- 3 **TRIGGER GRIP.** Gives natural position to arm and grip, and is easy to hold. No fatigue.
- 4 **GUN LOCK.** Stream can be set in any pattern and locked there if desired. Relieves hand and arm muscles.
- 5 **HOSE SWIVEL.** Eliminates bothersome twisting of hose.



IT'S THE PRESSURE AND THE PUMP!

800 LBS. AT THE PUMP! That's a pretty tough job for any unit. But—the FMC High-Pressure Pump has proved its ability to deliver and maintain that pressure at thousands of fires. The reason? This pump—built only by Bean—is different from all other pumps and is designed especially for high-pressure work by high-pressure pump engineers.

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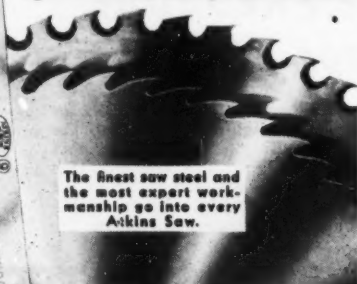


In many of the largest mills in the country, Atkins Circular Saws are given the tough jobs. Such acceptance is based on performance—on the ability of Atkins Silver Steel teeth to keep cutting for profitable extra production hours—on the long life built into these saws by the skilled craftsmen of the Atkins plant.

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FRED WINN—A TRIBUTE By JOHN D. GUTHRIE

THERE are people like a familiar mountain peak on a distant horizon—always there, bold or soft in outline in morning sun or evening glow—but always there, a familiar, friendly landmark. Then some morning we look and the peak is gone—only a flat, drab, uninteresting skyline. Such was Fred Winn, veteran Forest Service officer, who died suddenly in mid-January.

His was a rare character and personality. A clear thinker, with high standards of morality and ethics, he was above all a friend of man. He had lived with and known trappers and pioneers, prospectors and miners, cowmen and sheepmen, Mexicans and Mormons, legislators and governors, cabinet officers and generals, authors and artists.

Tall, spare and sinewy, like one of his friend Frederic Remington's cowpunchers or early Army officers, Winn had stamina, physical, mental and moral. An ice-boat accident in his youth left him totally deaf in one ear; later a mixup in the Texas Panhandle with a wild horse came near finishing his hearing. Then, in 1941, near an Arizona CCC camp, he was knocked down and dragged by his own car. This last accident alone was one few men of his age could have withstood. Yet he survived, and was spared a few more years to his many friends. He met his last great adventure quietly on January 19, while reading in the library at Tucson, Arizona. I think it probably pleased him to start over his last trail, as of yore, with his boots on.

Fred Winn had a keen intellect, with wide interests. He was an omnivorous reader of biography and history, possessed of a fine sense of humor, and was intensely loyal to his friends and his convictions. His own backgrounds were wide. Born in Madison, Wisconsin, in 1880, his father was physician to the great Chinese statesman Li Hung Chang. Following his early life in

China, he was educated at Rutgers before answering the call of the great Southwest. In Texas, New Mexico and Arizona, he was prospector, miner, ranch hand, cowpuncher, mail carrier, surveyor, forest guard, forest ranger, forest supervisor, artist and author, historian—and always a friend of man. He was equally at ease in a miner's cabin, around a roundup chuck-wagon, or in a drawing room. Fred Winn was in the real sense a gentleman and a scholar.

Because of what he felt back in 1907 was the crowding of civilization in on his Southwest, he decided to move to the Argentine. Fortunately for the U. S. Forest Service and the cause of American conservation, he was persuaded to become temporarily, at least, a forest guard on the old Magdalena National Forest, in New Mexico. From then until his final retirement in 1942, he was a stalwart in the forestry cause, serving with distinction on forests in Arizona and New Mexico. Winn was a most unusual forest supervisor, known, respected, and loved far beyond the rugged confines of his forest, the Coronado—indeed, beyond the



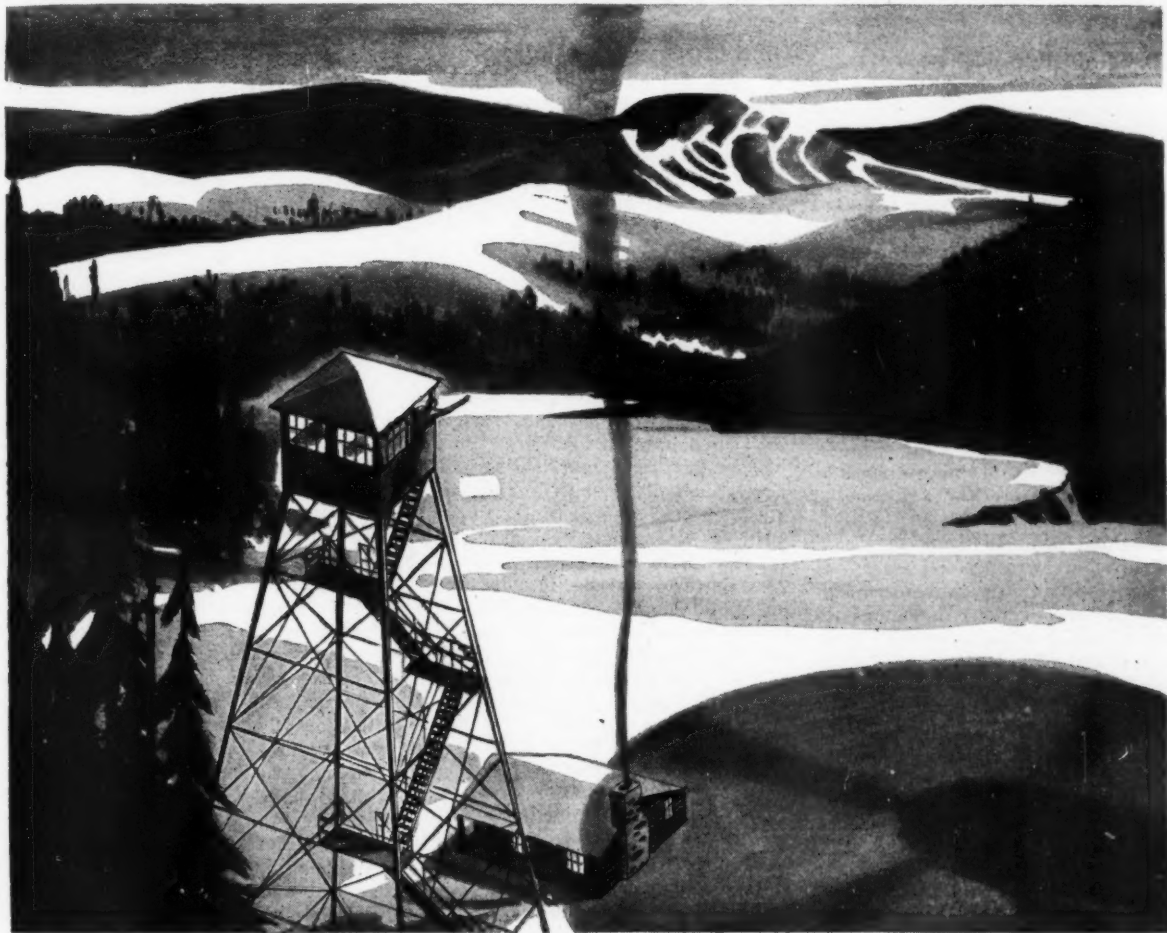
Fred and Ada Pierce Winn

boundaries of Arizona. He wrote frequent guest editorials for Tucson and Phoenix daily papers, contributed historically accurate and unusual articles on early days and old-timers of the Southwest, and knew and collaborated with the best known western writers.

Winn wrote well and interestingly. Just before his final retirement he began the history of the national forests and forestry in the Southwest, amassing much valuable and basic data. He had real talent as an artist and might well have made himself nationally famous as a painter of the West—another Charles M. Russell, or a Frederic Remington. Instead he chose forestry as a life work.

Fred Winn will be sorely missed as a high-minded government officer, but above all as a friend.

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CONSERVATION IN THE UNITED STATES, by A. F. Gustafson, C. H. Guise, W. J. Hamilton, Jr., H. Ries. Published by Comstock Publishing Company, Inc., Ithaca, New York. 477 pages, illustrated. Price \$4.00.

Recognizing that the advent of the war has made conservation of the nation's natural wealth a matter of importance to every individual, the authors have endeavored to impress the public with the imperative need for wise use of natural resources. The very possible era of governmental control after the war brings the matter of handling our resources directly to the public whose voice determines governmental policies. Here is an opportunity to secure first hand practical information on the broad principles of conservation.

TREES ON POSTAGE STAMPS OF THE WORLD. Published by Barclay Madison Corporation and Piling Associates Incorporated, New York, N. Y. 38 pages. Price \$1.00.

Something new for the philatelist—especially those who are tree lovers—is offered here in an artistically bound collection of reproductions of stamps on which appear drawings of trees. Trees of many nations are represented with descriptions of each. A unique feature appears inside the back cover—a full page drawing of a tree with spaces for War Savings stamps of all denominations.

WOOD CHEMISTRY, edited by Louis E. Wise. Published by Reinhold Publishing Corporation, New York, N. Y. 900 pages. Price \$11.50.

In the preparation of this volume, Mr. Wise, Research Associate of the Institute of Paper Chemistry, has had the contributing help of thirteen authorities in the field of wood chemistry and technology. As its title suggests, it is a book for chemists and those whose work and studies involve a knowledge of wood chemistry and of research progress in that field. It is published as a monograph in the series of scientific and technological works sponsored by the American Chemical Society and as such, supplements Monograph 28, "The Chemistry of Wood," published in 1926.

As the writer points out, a certain amount of overlapping could not be prevented in expanding the original monograph to include the more important information which fundamental investigations have yielded since the original monograph was published. Considering the remarkable advances that have been made in the field of wood chemistry in recent years the book is extremely timely and serves the dual purpose of providing a down-to-date text and of giving impetus to further researches into the chemistry of wood.

BOOKS and OTHER PUBLICATIONS

A list of Selected Books on Forestry and related fields of Conservation is available to members of The American Forestry Association on request.

THE AMERICAN EAGLE, by Francis Hobart Herrick. Published by D. Appleton-Century Company, New York, N. Y. 267 pages, illustrated. Price \$3.50.

This book is unusual in that the eagle, about which so much has been written, could have furnished the quantity of new material, fresh stories and entirely different accounts of behavior as are contained here. Since the eagle possesses so many individual characteristics, entirely distinctive, it has made its majestic appearance in volumes written in all languages. Here the author has succeeded in preparing a work of a different kind, for it treats the bird both as king and pirate and records its influence on history and literature.

ON YOUR OWN (How to Take Care of Yourself in Wild Country) by Samuel A. Graham and Earl C. O'Roke. Published by the University of Minnesota Press, Minneapolis, Minnesota. 150 pages, illustrated. Price \$2.00.

Tyro or tenderfoot in a new locality will find this an invaluable handbook in solving difficulties attending adjustment to a strange environment. It discusses best methods of protection from heat or cold, from dangerous plants and animals; teaches the reader how to identify edible plants and animals and advises what to do in such emergencies as quicksands, thin ice or sudden storms. Assuredly, a potent weapon for those who plan to enter the wilderness of mountains, plains or forests, prepared by two scientists with impressive academic backgrounds.

HOW TO RAISE RABBITS FOR FOOD AND FUR, by Frank G. Ashbrook. Published by Orange Judd Publishing Company, Inc., New York, N. Y. 256 pages, illustrated. Price \$2.00.

City and country resident alike will find here a practical guide for entering a field where the family meat supply can be supplemented and profits on furs realized. No details of rabbit culture are omitted and the result is an accumulation of practical information that is more than likely to bring many recruits into the realm of rabbit production.

FORESTRY ON PRIVATE LANDS IN THE UNITED STATES, by Clarence F. Korstian. Bulletin 8, Duke University, School of Forestry, Durham, North Carolina. 234 pages, illustrated. Price \$1.00 in paper binding and \$1.50 in cloth (copies may be secured without cost through cooperation with the National Lumber Mfrs. Association).

This impartial and comprehensive study of conditions and possibilities on privately owned forest lands in the United States should help resolve the cross currents of opinion regarding the status, problems and prospects of private forestry in this country. The detailed reports on forest conditions in eight typical states located in the four forest regions present individual records of special value. On their basis, and more general observations, the author points out present weaknesses and suggests measures designed to improve the forest situation in the country as a whole.

Adequate fire protection is singled out as the most important requirement for maintaining forest land in continuous productivity. He also urges more and better cooperation between the several public agencies and private forest owners and operators, prompt establishment of cooperative sustained-yield units as recently authorized by Congress, modification of burdensome tax laws, provision for low-interest forest credits, and more aggressive efforts by industrial forest owners—applying more and better forestry practices to their forest lands.

Revealing wide-spread disapproval of any plan for centralized over-all Federal control of forest cutting practices on privately owned lands, the author presents the case for the assumption of individual responsibility under guidance and possible enforcement by the States.

SNOWSHOE COUNTRY, by Florence Page Jaques. Published by the University of Minnesota Press, Minneapolis, Minnesota. 110 pages, illustrated. Price \$3.00.

Particularly pleasing is the style in which the writer turns abruptly from descriptions of rugged northwoods characters to delightful portrayals of Nature's beauties that bring to mind such an expression as "literary filigrees." It is the story of the journey of Mrs. Jaques and her husband—the latter a talented artist whose drawings adorn the book—through the wilderness of lakes and mountains and forests in the border country of Minnesota and Canada. In it, Mrs. Jaques' stated objective of providing "release from the tenseness of everyday life" is well accomplished. Rarely is a reader so completely transported into a world where there is only kindness, bubbling vivacity, and perfection of snow, trees and wildlife.

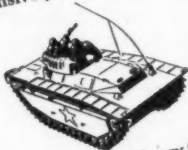
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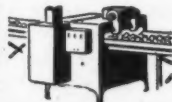
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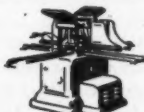
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Book matches, already hard to get, will be fewer in 1945 than they were in 1944, the War Production Board reported recently.

Approximately 460 billion matches will be produced in 1945 as compared with approximately 475 billion in 1944, the WPB said, adding that of the 1945 production the armed forces will require 35 per cent of the book matches and the entire output of the strike-on-box matches.

BOOK MATCHES IN FOUR COLORS WITH A FIRE PREVENTION WARNING!



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SPREAD the message of Forest Fire Prevention by distributing these useful Book Matches—and at the same time have the advantage of your imprint on each match book. Give them to your customers, friends, and arrange for their distribution among local drug, tobacco and sporting goods stores.

THESE useful matches with your imprint available in case lots (2,500

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INSIDE COVER

books) at \$12.50 a case—Free Delivery on 3 or more cases with same imprint to one address. Express collect on less than 3. State Tax added in these States: Iowa 2%, California 2½%, Ohio, 3%, Missouri 2%. Allow 4 weeks for delivery. IDEAL for all companies, associations and individuals who desire to promote a forceful and practical message in the interest of Forest Fire Prevention.

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3-45

Annual Report of the U. S. Forest Service

LUMBER production for war and essential civilian needs from national forests in 1944 totaled 3,300,000,000 board feet, the largest cut on record since the founding of the Forest Service forty years ago, Lyle F. Watts, chief of the Forest Service, said in his annual report to the Secretary of Agriculture.

Timber from federal forests supplied approximately ten percent of all lumber cut in the United States and was valued at \$14,300,000. The production increase was sixty-four percent over the previous fiscal years. The unusual, war-time demand for national forest timber was attributed by Mr. Watts to a cumulative shortage of timber on private lands. He warned against possible "local pressures," particularly in the post-war period, to exceed sustained-yield cutting budgets in the future on public forest lands and added: "There must be no yielding to such pressures."

He expressed concern over "wholesale liquidation of the young timber which should be the source of sawlogs for decades to come" and claimed the practice is prevalent on privately owned forest lands in the Northeast, South and the Lake States, and is becoming apparent in California and the Northwest.

The course of forest exploitation in this country, he said, shows that the public must act in a far more comprehensive manner than heretofore to stop destructive cutting, to facilitate good practices on private forest lands and to acquire such lands as may not otherwise be given the management dictated by the public interest.

His report lists varied contributions made to the war by the Forest Service. In connection with postwar projects, he said, "home building may easily rise to 900,000 new units a year in the five postwar years"—a construction boom that alone would require 8,000,000,000 board feet of lumber annually. He warned against "unwise attempts in post-war adjustment to colonize for agricultural use lands that are primarily suited for forestry," as was the case after the last war.

Among the wartime accomplishments of the Forest Service described in the report were several technological developments from the Forest Products Laboratory at Madison, Wisconsin, where facilities have been devoted almost exclusively to Army, Navy and war industries on a three-shift basis; stimulation and increase of output by 20,000 small sawmills through the Timber Production War Project; and surveys conducted on behalf of several federal agencies to determine national lumber production, retail lumber stocks, and

Your Invitation To Membership

IN THE AMERICAN FORESTRY ASSOCIATION

TO provide a basis for informed postwar handling of one of the country's most important natural resources, The American Forestry Association is undertaking a fact-finding survey to determine what effect the war is having upon the country's forests and forest lands and what will be their condition when the manifold problems of reconstruction are at hand. This important undertaking is known as the Forest Resource Appraisal.

Public-spirited citizens, industrialists and organizations alert to the need of forest conservation and development in postwar economy are making this survey possible by underwriting its estimated cost of \$250,000.

Many other individuals and organizations are indirectly supporting this activity through membership in The American Forestry Association. We would welcome your participation in the important program of the Association, and for your convenience the various classes of membership are listed in the coupon below.

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3-45

anticipated production and consumption of forest products for 1944 and 1945.

From the Forest Products Laboratory, Mr. Watts cited work done on the development of industrial alcohol from wood waste; improvement of physical characteristics of wood by chemical treatment known as acetylation which reduces shrinkage and swelling; development of "staypak," a form of compressed wood of high density and strength now being studied for possible use in making propellers; and research on container and packaging problems which has resulted in saving cargo space to the extent that four ships now carry the material that formerly required five.

In spite of adverse factors, including the loss of key leaders in fire control to the armed forces, and the fact that nearly 3,000 more fires occurred, the Forest Service chief reported an improved fire record on state and private lands. His report showed 3,860,143 acres burned over and \$9,283,762 damage from 78,815 fires on protected areas. The previous year 75,849 fires burned over 3,862,736 acres and damage was estimated at \$9,965,557. On national forest lands 11,829 fires were reported and 234,323 acres were burned over. Mr. Watts gave special credit to the armed forces for cooperation in fighting forest fires.

He called attention to the urgent need of extending fire protection to 131,000,000 acres of unprotected state and private forest lands but said enactment during the year of legislation increasing the authorization for cooperative fire protection from \$2,500,000 to \$9,000,000 a year should open the way for this protection.

Because of growing interest in the commercial development of Alaska's forests, he called for a program of research in the Territory to provide a sound foundation for the utilization and management of Alaskan forest resources. "Mistakes made in the pioneer exploitation of the forests of the United States must not be repeated in Alaska," he said.

The report calls attention to a twenty-five percent increase in receipts from livestock grazing on range lands within national forests and emphasized the continued success in avoiding overstocking which proved so disastrous in the first World War. Range improvements, re-seeding and rodent control, he said, are paying dividends.

CROW JOINS APPRAISAL STAFF

A. Bigler Crow, a graduate of the Yale School of Forestry, and now on leave of absence from the Soil Conservation Service, has joined the staff of The American Forestry Association's Forest Resource Appraisal as assistant regional consultant for the Northeastern Region.

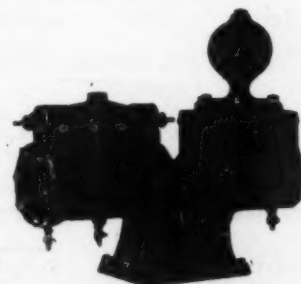


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CONSERVATION CALENDAR

Important Bills in Congress With Action
January 18 - February 13, 1945

Governmental Functions

S. Res. 45—BAILEY—Extending the activities of the Special Committee to investigate the conservation of wild-animal life to the end of the 79th Congress and authorizing an expenditure from the contingent fund of the Senate of \$13,000 in addition to the amounts heretofore authorized for such purpose. Introduced January 22, 1945 and referred to the Committee to Audit and Control the Contingent Expenses of the Senate.

H. Res. 97—COCHRAN—Allocating expenses of the Select Committee on Conservation of Wildlife Resources in the investigation of all matters pertaining to the replacement and conservation of wildlife. Agreed to January 29, 1945.

H. Res. 114—MANASCO—Providing for studies and investigations with respect to the disposition of surplus property and with respect to the administra-

tion of the Surplus Property Act of 1944. Introduced January 29, 1945 and referred to the Committee on Rules.

Lands

H. R. 1867—ELLSWORTH—To reopen the reverted Oregon and California Railroad grant lands to exploration, location, entry and disposition under the general mining laws. Introduced January 30, 1945 and referred to the Committee on the Public Lands.

National Monuments

H. R. 2109—BARRETT, Wyoming—To abolish the Jackson Hole National Monument as created by Presidential Proclamation No. 2578, dated March 15, 1943, and to restore the lands belonging to the United States within the exterior boundaries of said monument to the same status held immediately prior to the issuance of said proclamation. Introduced February 12, 1945 and referred to the Committee on the Public Lands.

H. R. 2110—BARRETT, Wyoming—To repeal section 2 of the act entitled "An Act for the Preservation of American Antiquities," approved June 8, 1906. Introduced February 12, 1945 and referred to the Committee on the Public Lands.

National Parks

S. 386—ELLENDER—To provide for the establishment of the Tensas River National Park, Louisiana. Introduced January 25, 1945 and referred to the Committee on Public Lands and Surveys.

H. R. 1705—THOMASON—Providing for the appointment of a U. S. Commissioner for the Big Bend National Park in Texas. Introduced January 23, 1945. Reported without amendment (Report No. 104) by the Committee on the Public Lands, February 12, 1945.

Research

S. 383—BANKHEAD (H. R. 1690—FLANNIGAN)—To provide for the further development of cooperative agricultural extension work. Introduced January 22, 1945 and referred to the Committee on Agriculture and Forestry.

Water and Stream Control

S. 35—OVERTON, Louisiana—Authorizing the construction, repair and preservation of certain public works on rivers and harbors. Passed Senate January 29, 1945. Reported without amendment (Report No. 63) by the House

Financial Statement The American Forestry Association

BALANCE SHEET AS OF DECEMBER 31, 1944

ASSETS		LIABILITIES AND SURPLUS	
Cash	\$26,190.45	Accounts Payable	\$334.46
Accounts Receivable	1,420.04	Reserve for Prepaid Member-	
Depreciation Fund	1,000.00	ships	39,997.56
Accrued Interest Receivable	921.34	Surplus	278,576.44
Inventories	2,856.72		
Deferred Charges	3,306.31		
Endowment Fund (Including Real Estate)	282,163.18		
Furniture and Equipment	1,050.42		
TOTAL	\$318,908.46	TOTAL	\$318,908.46

INCOME AND EXPENSE ACCOUNT FOR YEAR ENDING DECEMBER 31, 1944

EXPENSE		INCOME	
General Administration	\$29,961.32	Membership Dues	\$58,110.88
American Forests Magazine	38,381.49	Advertising	22,249.11
Membership	18,036.51	Interest	5,623.19
Forester's Office	2,420.28	Donations	970.50
Educational Publicity	3,689.52	Forester's Office	2,413.50
Operating Balance	7,637.03	Miscellaneous	5,263.16
		Sale of Publications	5,495.81
TOTAL	\$100,126.15	TOTAL	\$100,126.15

FOREST RESOURCE APPRAISAL

INCOME AND EXPENSE ACCOUNT FOR YEAR ENDING DECEMBER 31, 1944

Expenditures and Commitments	\$71,878.38	Income (Donations)	\$75,384.99
Excess Income Over Expenses	3,506.61		
TOTAL	\$75,384.99	TOTAL	\$75,384.99

AS TRUSTEE FOR AMERICAN FOREST FIRE MEDAL PROJECT

Expenses	NONE	Receipts	\$57.56
Total Balance this Fund December 31, 1944			\$2,814.67

Committee on Rivers and Harbors, February 8, 1945.

S. 460—MITCHELL—To establish a Columbia Valley Authority to provide for integrated water control and resource development on the Columbia River, its tributaries and the surrounding region in the interest of the control and prevention of floods, the irrigation and reclamation of lands, the promotion of navigation, the providing of employment for veterans and war workers, the strengthening of the national defense, and for other purposes. Introduced February 5, 1945 and referred to the Committee on Commerce.

H. R. 1824—RANKIN—To provide for the creation of conservation authorities, and for other purposes. Introduced January 29, 1945 and referred to the Committee on Rivers and Harbors.

H. R. 2203—COCHRAN (S. 555—MURRAY)—To establish a Missouri Valley Authority to provide for unified water control and resource development on the Missouri River and surrounding region in the interest of the control and prevention of floods, the promotion of navigation and reclamation of the public lands, the promotion of family-type farming, the development of the recreational possibilities and the promotion of the general welfare of the area, the strengthening of the national defense, and for other purposes. Introduced February 15, 1945 and referred to the Committee on Rivers and Harbors.

Amendment of AFA By-Laws

The following amendment, submitted to the membership of The American Forestry Association, giving the Board of Directors authority to revise the By-Laws from time to time, was approved by a vote of 1,849 to 52:

"Article XIII—These By-Laws may be amended by the Board of Directors at any regular or special meeting provided notice of the proposed amendments shall be given to all Directors in writing at least thirty days before the date of such meeting. These By-Laws may also be amended by the members in the following manner. Any amendment proposed in writing over the signatures of fifty or more members, shall be submitted to the members with the next succeeding election ballot and shall be adopted if it receives the affirmative vote by mail of a majority of the members voting thereon. All amendments shall be published in the magazine within ninety days after adoption."

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MAKE HARD WORK EASY!

SANDVIK BOW SAWS lead in quality and performance, are always dependable and materially assist in reducing operating costs. FRAMES of lightweight Steel Tubing, SAWS made from best procurable saw Steel, thin back, fast and easy cutting.

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Behind Tomorrow's Blueprints . . .

TODAY, "a home of our own" tops the postwar plans of thousands of American fighting men and their families.

These plans have not reached the blueprint stage yet; but when they do, our forests will be ready. From them will come the scores of lumber items required for homes of beauty, comfort and durability.

Our forests of Southern Pine and Hardwoods continue to provide the lumber needs of war. But under perpetual yield management, they will form a backlog for the blueprints of tomorrow.



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2 yr. Special American Red Pine	Per 1,000
2 yr. Austrian Pine	\$12.00
2 yr. Special Colorado Blue Spruce	30.00
4 yr. Norway Spruce	18.00
2 yr. Douglas Fir	40.00
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Plant for Nuts—Profit—Shade—Beauty—Fun

Send postcard now for FREE booklet and prices on over 20 varieties of nut trees. Excellent for ornamental purposes. I have experimented with nut trees for over 48 years.

Sunny Ridge, 442 New St., Swarthmore, Pa.

The Forest Exchange

(From page 100)

back, and that trip over foot trails is rugged enough to keep use down to a point consistent with maintenance of natural conditions.

The reasonable compromise, it seems to me, would be to provide two foot trails across the area and to permit limited angling on all but three to five miles of the streams best suited to study of aquatic life. The American Forestry Association would do well to lend the weight of its support to such a movement.—*I. H. Sims, Washington, D. C.*

SIR: After careful consideration and consultation with three other members of the staff of this Academy, I have come to this conclusion: the trails in the Three Forks district should be kept open and in condition, in order that botanists and other scientists may avail themselves of the opportunity for study and to make limited scientific collections in the park.

Dr. Edgar T. Wherry was among those consulted. In addition to his being on the staff of the Academy, he is professor of botany at the University of Pennsylvania—one of the most distinguished botanists of North America.

In order to carry even meagre equipment such as bedding, food, camera, plant presses, etc., horses are necessary and can do little if any harm if horse feed is carried in.

We see no real reason why fishermen should not fish, under some supervision, in waters that have been stocked. A few virgin streams or pools might be forbidden if there are any that have not already been disturbed by restocking.—*Mrs. J. Norman Henry, Research Associate, The Academy of Natural Sciences of Philadelphia.*

SIR: The primary object of The American Forestry Association should be to promote the maintenance of the forests of this country in such a way that they serve many purposes—to provide a constantly replenished supply of lumber; to provide areas where people may find the recreation they most desire; and to provide a home for the wildlife and plants which originally inhabited the area.

In many ways these purposes conflict and it seems advisable to set aside some areas for scientific study, to be used by naturalists as they see fit, so that they may more intelligently devise a plan for coordinating all the various uses.

The recent articles by Tom Alexander and Louise and Stanley Cain seem to indicate that the Association should reconsider its position and reaffirm what it stands for. Many members accept as

an unfortunate necessity the encroachment of the landscape architect and the interests which profit from the entertainment of the public on such areas as Yellowstone and Yosemite, but feel that there is definitely some point where the preservation of natural conditions should take precedence over the use for recreational purposes.

The National Park Service has arrived at a plan for the lands under its jurisdiction which permits their use under varying degrees of regulation, suited to their types and situations, to the end that some areas will be maintained in as near their natural condition as possible.

At this time the Association should make a complete study of this conflict between the desire to preserve natural conditions and the necessity for devoting large areas to recreational purposes. A definite policy should be adopted in support of the Park Service and a constant guard maintained against the forces desirous of misappropriating the areas which have been set aside for preservation.—*Russell P. Hastings, San Francisco, California.*

SIR: I have studied the article "Three Forks — Lost Province of the Great Smokies," and my conclusion is that the area should have greater, rather than less protection. The article concerning its present availability helps to confirm this conclusion, though I am unable to determine whether the writer does not understand the meaning of wilderness or intended merely to arouse sentiment to destroy the particular reserve he discusses. Whatever the reason, it is hard to understand why the article was published, for it appears to develop no logical reason to discredit the establishment of protected areas in the parks where the whole unit cannot be treated properly.

The Great Smoky Mountains National Park was established after the vegetation and animal population had been considerably depleted by human activity. Although protection has resulted in some recovery, the large number of visitors would require special care of the better areas if they are to be preserved. The changes indicated by Mr. Alexander, as reflected by the vegetation after protection was given it, show that the area had been used harmfully.

As to the implication that people are barred from these research areas, a recent statement from the Park Service says that a research area is not closed to anyone who wishes to expend the necessary effort to get into it.—*Jean M. Linsdale, Monterey, California.*

Redwoods and the Peace Conference

SELECTION of San Francisco as the meeting place for an international conference where the foundations of a permanent peace organization will be laid, is in line with a suggestion made in the summer of 1942 by the Save-the-Redwoods League, which proposed that a California site be chosen for the peace conference, and that the statesmen attending should visit the giant redwood groves which are distinctive of California.

Dr. John C. Merriam, one of the founders of the League, in his annual message in August, 1942, said: "It may be that for the statesmen who settle those great questions (of the peace conference) in which time is a critical element we should recommend a sojourn of at

least a few hours in a redwood temple, where time must be faced and in some measure appreciated."

The proposal that conferences of statesmen planning permanent peace should be held in California, with visits to the redwood groves, has been widely publicized by the Save-the-Redwoods League in the past two years.

The Save-the-Redwoods League is collaborating with the Garden Club of America and other influential national organizations in the preservation of a National Tribute Grove of redwoods to be established in honor of the men and women of the armed services of the United States in World War II. Honorable Joseph C. Grew is Chairman of the National Committee of Sponsors.

Fighting Tree Killers With DDT

(From page 112)

reau of Entomology and Plant Quarantine. Flying at eighty miles an hour fifty feet over the forest, a White standard airplane carries a load of 700 pounds, with a special apparatus to spread a swath 120 feet wide. The essential features of this device consist of two units of four disks each, set at either side of the plane's slipstream and rotated by small air-driven propellers. The spray mixture is fed by gravity onto these disks from a tank within the plane. It is thus atomized and settles as a fine mist of uniform coverage. The exact amount required for an acre varies with the volume of foliage.

With high-powered ground equipment, rather extensive applications of DDT have been made in Colorado, with dosages of from two and a half to ten pounds an acre. All applications totaling over twenty acres resulted in almost perfect control of the budworm. It is quite possible that the early applications, which killed the young larvae as they began feeding, were partially effective against the moths several weeks later. If so, this would indicate that the benefits might carry over to the second year.

Research is, of course, not being confined to any one insect problem. Although DDT has been used most effectively as a contact spray against young larvae, it is also highly toxic as a stomach poison. That is one reason why it has been so successful against such a large variety of defoliators, borers, sucking insects, bark beetles and others. The problems of the gypsy moth, the brown-tailed moth, the tent caterpillar, the elm beetle and dozens of others are perhaps at last on their way to being solved.

To discover the best form of DDT, it

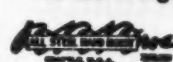
is being applied experimentally as a suspension, a solution, an emulsion, a dust and a smoke; by means of air-planes, high-powered sprayers, knapsack sprayers and hand atomizers.

There are still many problems to be solved. The most suitable type of planes must be found and spraying devices must be improved. The right dosages and the right seasons must be worked out for each insect pest. Some scheme for marking swaths over the forest canopy and avoiding too much overlapping must be found. The usefulness of air-plane spraying could be enormously increased if incipient attacks could be located by aerial surveys.

Furthermore, the effect of DDT on wildlife as a whole must be given careful study. Foresters may be faced with something that has never occurred before in history—a practically insect-free forest.

Such intense activity in the face of wartime pressures is justifiable only because all investigators working with DDT agree that this new insecticide offers tremendous possibilities for the practical control of many forest insects. Manufacturing chemists have backed this claim by producing the complex DDT in enormous quantities at a price that has dropped from \$1.60 to less than eighty cents a pound. At present the armed services require most of this production of 2,000,000 pounds a month, with only small quantities available to the scientists. More distribution to the public is of no use, as DDT is not a finished insecticide without proper composition and proper carriers. But with careful research it can become of great value to everyone interested in healthier trees and better forests.

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Two Speeds
Positive Internal Brakes

COMPACT
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For Use Where Power is Not Practical, Available, or Sufficient

Two Ton "Lightweight"—Weight 60 lbs.
Five Ton "General Utility"—Wt. 110 lbs.
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Positive internal brake—Two quickly shifted speeds
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But DDT cannot be considered a cure-all nor a stop-gap. It will aid but not eliminate silviculture. Everyone familiar with the problem of the spruce budworm agrees that the only long-term solution lies in better management of the forests. Ideally, a thirty-year cutting cycle should be established—and every stand should be cut as it matures.

Also, as much timber as possible should be salvaged from damaged stands. In pulpwood operations, where possible, concentration on spruce should be modified; uses should be found for secondary species. This, in turn, means more roads, better forest patrol.

In other words, use the trees before the spruce budworms do.

Forestry in San Pietro

(From page 113)

me to my audience and did it so gracefully and with such broad implications of my deep knowledge of my subject that he left me slightly embarrassed. He is an ichthyologist when he works at his civil job, so what could I expect?

One cannot hope to do justice to forestry in the time allotted for a single lecture. But I endeavored to depict the forest as a combination of living elements, both plant and animal, living together, as Gifford Pinchot says, "in an exact and intricate system of competition and mutual assistance, of help or harm" which the forester must learn to understand and endeavor to manage scientifically and sensibly.

I tried to show how man, bearing a knowledge of the forest elements, could work in the forest as a farmer does in his fields, toward the production of a crop of useful wood. Then I attempted to describe briefly the several branches of forestry, what they do, and how they fit into the whole picture. My one idea

was to leave with the soldier audience the fact that preparation for forestry requires much hard work and study, but that if one is willing to do this he may one day find himself a member of a constructive profession engaged in tending forests and in producing the crops of wood without which mankind will find it difficult to live.

Whether or not I was successful is a matter of opinion, but there was a lively question period which was followed up in succeeding days by visits from men who wanted to know more.

What happened in our outfit in San Pietro must also have happened and be happening wherever the men of the Allied services have time to think of the future. The ranks of the forestry profession the world over will eventually include great numbers of young warriors now on farflung battlefields, who at this very moment are looking forward to spending their lives in the constructive and peaceful business of tending forests.

AUTHORS and PHOTO CREDITS

LT. COL. A. E. PARLOW (*The Canadian Forestry Corps*), late of the Corps, is now attached to the Forest Branch, Department of Lands of British Columbia. HENRY KERNAN (*Fighting Tree Killers With DDT*)—is an industrial forester—Yale '41—at present attached to the staff of this magazine. ROBERT P. HOLDSWORTH (*Forestry in San Pietro*) saw foreign service as a major in the Air Corps in North Africa and Italy, 1942-44, and is now back on his job as professor of forestry at Massachusetts State College. HAL H. HARRISON (*The Bird's Debt To the Tree*) is a bird enthusiast and President of the Audubon Society of Western Pennsylvania. HENRY TRYON (*"Brush Patch" Forestry*), Harvard forester, is Director of the Black Rock Forest at Cornwall-On-Hudson. WILLIAM DUCHAINE (*Northwoods Sky Pilot*), veteran newspaperman, edits the Escanaba *Daily Press*, in the upper Michigan lumbering region. G. H. COLLINGWOOD (*Red Alder*) is Chief Forester and Assistant Secretary of the National Lumber Manufacturers Association.

Credit for photographs used in this issue is acknowledged as follows:

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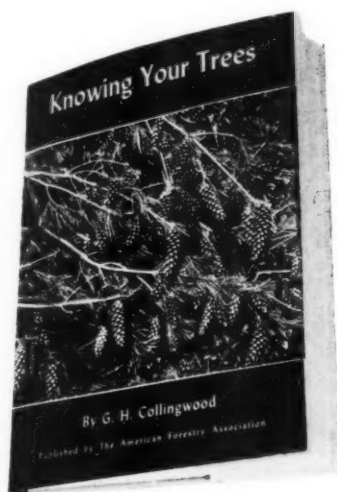
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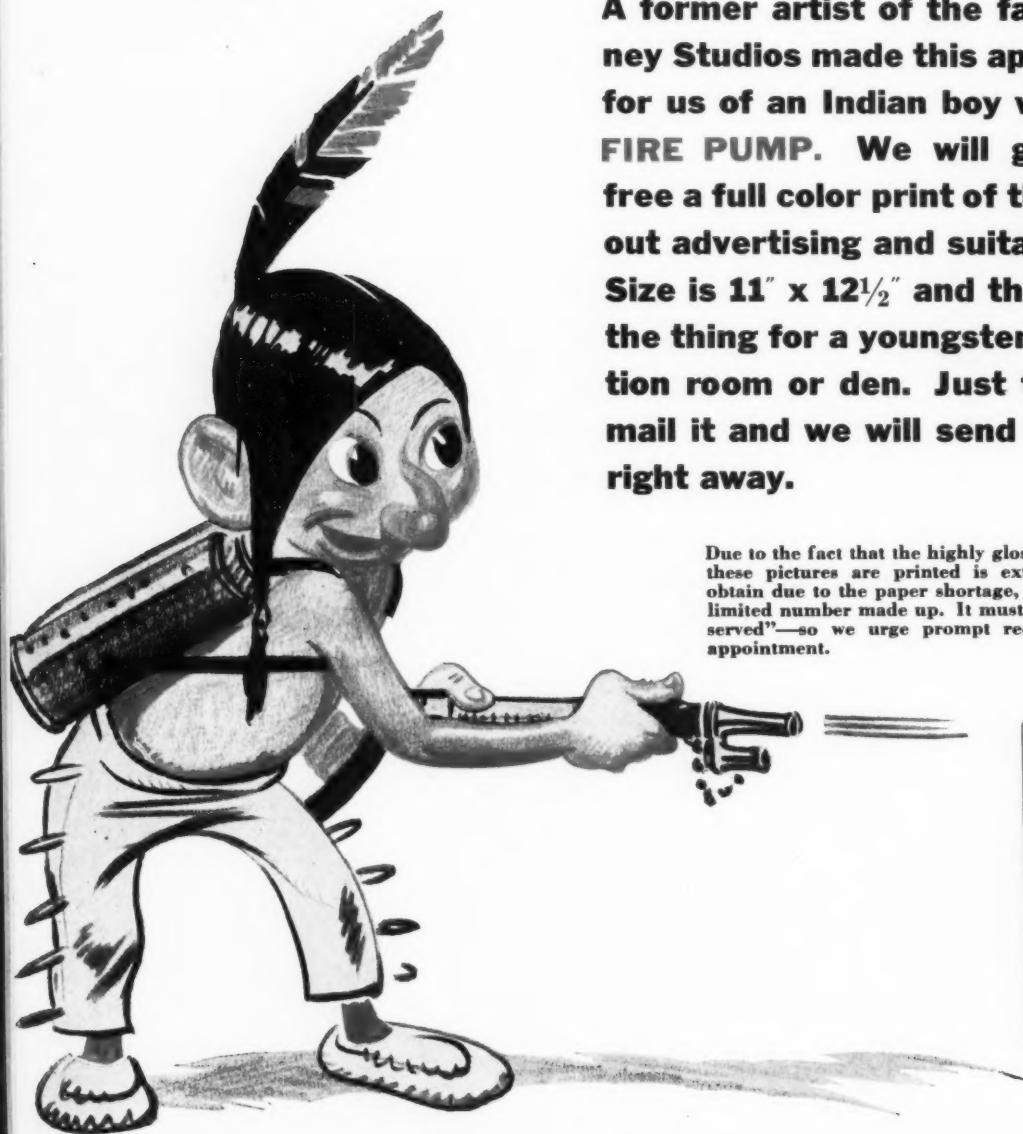
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